Living through Lockdown

Coping Strategies and Perceived Stress of New Zealand-based Parents During the 2020 COVID-19 Restrictions in Aotearoa New Zealand

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ABSTRACT

The current study examined coping strategies and perceived stress of New Zealand-based parents during the 2020 COVID-19 restrictions. Two online surveys were administered. Survey 1 (N = 242) was available between May 7th and May 16th and covered the previous four weeks of Alert Level 4 and 3. Subject IDs were generated for those participants who opted to complete Survey 2 as well. Survey 2 (N = 125) was available between June 12th and June 19th and covered the previous four weeks of Alert Level 2 and 1.

In both surveys, coping strategies were examined with the Brief COPE Inventory and perceived stress was assessed with the Perceived Stress Scale-10. Participants were also asked questions on personal circumstances, appraisal of the lockdown, impact, daily routines, and the use of online coping strategies. Results showed that the number of adults who worked from home during the lockdown significantly and positively predicted perceived stress (i.e. increased perceived stress). Appraisal of the lockdown (as "positive", "mixed", or "negative") also predicted perceived stress. In Survey 1, 27% of the participants indicated that the lockdown had a negative effect on their mental wellbeing "fairly" to "very" often. This was associated with a significant increase in perceived stress. Participants who indicated that the lockdown "put a strain on relationships in their bubble" also experienced higher levels of perceived stress. The opposite was true for participants who indicated that the lockdown "allowed their family to slow down" or participants who "experienced less stress from work and/or school". Out of the coping strategies that were measured with the Brief COPE Inventory, self-blame, behavioural disengagement, self-distraction, venting, and planning predicted an increase in perceived stress. Emotional support and acceptance, on the other hand, predicted a reduction in perceived stress. The current study did not find any associations between perceived stress and the use of daily routines or online coping strategies.

Based on these results, as well as the relevant literature, the use of (computer-mediated) interventions based on acceptance and commitment therapy is suggested to improve mental wellbeing and reduce perceived stress in New Zealand-based parents during COVID-19 related restrictions.

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS, TABLES, AND FIGURES

1. INTRODUCTION

On December 31st of 2019, the People's Republic of China notified the World Health Organisation (WHO) that it was experiencing a cluster of "atypical pneumonia cases" in Wuhan (WHO, 2020a). The news reached New Zealand a few days later. On January 3rd, 2020, the New Zealand Herald reported that China was on "high alert" as at least 30 people had been quarantined with a mysterious SARS-like virus (O'Neill, 2020). This SARS-like virus was soon identified as a dangerous novel coronavirus (WHO, 2020b). By the end of January 2020, several New Zealand newspapers quoted Director-General of Health Dr Ashley Bloomfield as saying that it was "highly likely" that cases of the novel coronavirus would emerge in New Zealand (Hancock, 2020; Wiles, 2020).

A month later, the first case of novel coronavirus did indeed arrive in New Zealand (Ministry of Health NZ, 2020a). A New Zealand citizen returning from Iran tested positive for COVID-19 on the 29th of February 2020 (Ministry of Health NZ, 2020a). According to New Zealand's Ministry of Health, the chances of a community outbreak remained "low" (Ministry of Health NZ, 2020a). Nevertheless, the number of positive COVID-19 cases in New Zealand kept growing (Ministry of Health NZ, 2020c). On March 23rd, there were over 100 cases of coronavirus in the country, of which several were suspected to be the result of community transmission (Strongman, 2020). In the meantime, the WHO officially declared COVID-19 a pandemic (WHO, 2020c).

On the 25th of March 2020, a State of National Emergency was declared in New Zealand and the country moved into a strict, nationwide lockdown. New Zealanders were instructed to stay home and self-isolate. All non-essential services shut down and people were only allowed to leave their houses to visit essential services such as medical centres, pharmacies, and supermarkets (New Zealand Government, 2020a).

For parents, this meant that their children stayed home from school or day-care while they were expected to work from home. Various news media reported that parents experienced high levels of stress as a consequence of the COVID-19 restrictions. One week into the lockdown, Newshub (2020) wrote that "by now" parents had probably resorted to "screaming matches with their kids or teenagers". Around the same time, the New Zealand Herald reported that working parents would face "psychological challenges" and "eventually reach a breaking point" (Young, 2020). Despite this overwhelming negativity, some positive aspects of the lockdown were reported too. At the end of April 2020, Stuff shared that many readers

had spontaneously shared positive lockdown experiences on its Facebook page (Jackson, 2020). Several parents reported that the lockdown offered them the opportunity to spend more time together as a family (Jackson, 2020). A “Life under Lockdown” survey carried out by news website The Conversation found that the majority of its 2,002 respondents considered the lockdown a positive experience (Prickett et al., 2020).

These contrasting stories raise the question of how parents have experienced (and coped with) the 2020 COVID-19 restrictions in New Zealand. This thesis aims to answer this question, based on the results of two online surveys that were administered to a sample of New Zealand-based parents during and shortly after the 2020 COVID-19 restrictions.

2. LITERATURE REVIEW

The current study aims to answer the question of which coping strategies predicted perceived stress in New Zealand-based parents during the 2020 COVID-19 restrictions. The literature review below will discuss previous research on stress and coping, with a focus on the two measures that were used to assess stress and coping in the current study: the Brief COPE Inventory and the Perceived Stress Scale-10 (PSS-10). For the current study, additional questions were designed on the use of structure and online coping strategies. These questions were not part of the Brief COPE Inventory and will be discussed in more detail in the Methods section. Below, Lazarus' (1984) Process Model of Coping will be discussed first, followed by the Brief COPE Inventory, the PSS-10, the 2020 COVID-19 restrictions in New Zealand, and the literature on online coping strategies. Where relevant, comparisons will be made to previous research on coping and stress in relation to uncontrollable stressors like earthquakes, hurricanes, and past pandemics. This literature review will conclude with a brief explanation of the current study and an overview of the research questions that this study aims to address.

2.1 LAZARUS' (1984) PROCESS MODEL OF COPING

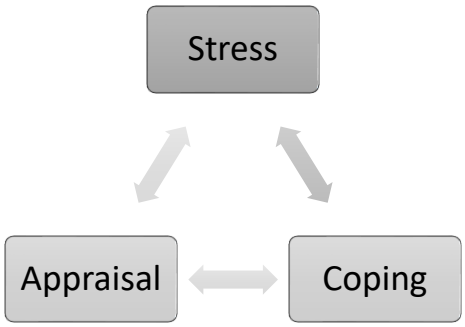
Lazarus (1984) developed his process model of coping in the 1980s. He described the coping process as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus, 1984, p. 41). Thus, Lazarus' conceptualization of coping focuses on three processes: stress, appraisal, and coping. Whereas the process of coping starts with a stressor, Lazarus argues that it is appraisal that deems an event stressful. After an event is appraised stressful, cognitive, and behavioural strategies are selected to manage the impact of the stressful event.

Even though Lazarus (1984) described the process of coping in a linear sequence (i.e. stress, appraisal, and coping) he emphasized that coping is a continuous evaluative process. Whereas this process starts with an event that needs to be managed, the meaning of this event can be reappraised based on the effectiveness of the coping strategies that have been selected to manage the impact of the event (i.e. stress). Thus, an encounter may initially be appraised as challenging but can be reappraised as threatening if coping strategies appear to be less

effective in reducing stress than anticipated. Figure 1 below displays the process of coping according to Lazarus.

Figure 1.

Lazarus' (1984) Process Model of Coping.



Traditionally, psychological research on stress and coping has focused on major environmental changes or life events without paying much attention to the role of cognitive appraisal (assuming that such events would always incur stress; Lazarus, 1984). However, in Lazarus' (1984) process model of coping, an event is not necessarily stressful unless it is appraised as exceeding an individual's resources. Lazarus (1984) describes appraisal as a continuous evaluative process through which individuals define the meaning and significance of an event for their wellbeing. He thereby distinguishes between primary and secondary appraisal. Whereas primary appraisal focuses on what is at stake for an individual, secondary appraisal focuses on the availability of coping options.

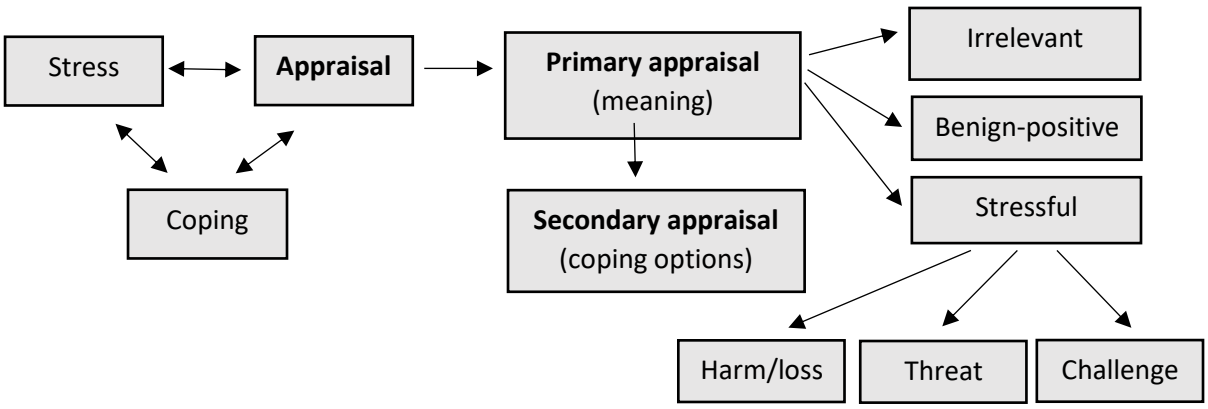
During primary appraisal, Lazarus argues that an event is either appraised as (1) irrelevant, (2) benign-positive or (3) stressful. When an event is appraised as stressful, this does not necessarily mean that it is appraised as negative too. A graduation ceremony for example might incur stress, but this may be experienced as positive excitement rather than negative stress. Similarly, work stress can be experienced as negative by some people, and positive by others. In case an event is primarily appraised as stressful, Lazarus distinguishes between three further options for appraisal: (1) the event is stressful and involves harm or loss, (2) the event is stressful and threatening (i.e. harm or loss is expected) and (3) the event is stressful

but this stress is considered challenging rather than threatening. Lazarus illustrates his conceptualization of appraisal with the example of terminal illness. Most people will perceive such an event as stressful, but whereas some people might experience this stress as threatening, others might appraise it as challenging. Perhaps not surprisingly, Lazarus argues that appraising a stressful event as threatening is associated with negative emotions such as anxiety and anger, whereas appraising a stressful event as challenging may result in more positive emotional states like hopefulness.

Secondary appraisal according to Lazarus' (1984) process model of coping is focused on the coping options that are available to the individual. Thus, secondary appraisal depends on the availability of coping resources, such as social support, positive beliefs, and paid employment (Lazarus, 1984). However, just like the ability to cope with stress can be aided by the above-mentioned resources, it can also be hindered by constraints like chronic illness, isolation, or low socioeconomic status (Lazarus, 1984). According to Lazarus (1984), primary and secondary appraisal interact with each other: the availability of coping options (secondary appraisal) influences the appraisal of the meaning of an event (primary appraisal) and vice versa. Lazarus' (1984) conceptualization of appraisal is displayed in Figure 2 below.

Figure 2.

Appraisal of an event according to Lazarus' (1984) Process Model of Coping.



The third part of Lazarus' (1984) process model of coping focuses on the coping strategies that can be used to managed stress. Lazarus (1984) described coping as the cognitive and behavioural efforts to manage a stressful event. To measure coping, Lazarus and Folkman

(1985) developed the Ways of Coping questionnaire. The Ways of Coping questionnaire has adequate reliability and validity in both clinical and non-clinical samples and is widely used in coping research (Lundqvist & Ahlström, 2006). In this questionnaire, Lazarus (1993) distinguishes between two major functions of coping: problem-focused coping (directed at managing the problem at hand) and emotion-focused coping (directed at regulating the emotional response to the problem). This distinction plays a critical role in Lazarus' coping theory. According to Lazarus (1993), problem-focused coping predominates when a stressful situation can be changed, whereas emotion-focused coping occurs when a stressful event must be endured:

> When stressful conditions are viewed by a person as refractory to change, emotion-focused coping predominates; when they are appraised as controllable by action, problem-focused coping predominates. … This frequently replicated finding links secondary appraisal, which has to do with the options for coping, with the coping strategy employed, and is reminiscent of the sensible, epigrammatic motto of Alcoholics Anonymous, which goes: 'God grant me the courage to try to change what can be changed, the serenity to accept what cannot be changed, and the wisdom to know the difference.' (p. 239)

Coping research generally considers problem-focused coping to be a more adaptive or positive coping strategy than emotion-focused coping (Lazarus, 1993). However, according to Lazarus (1993), the adaptive value of a coping strategy cannot be seen without its context. When a problem cannot be solved, self-distraction might be an adaptive coping strategy. However, when self-distraction prevents a person from solving a problem that can be ameliorated, it does not constitute an adaptive coping strategy. Lazarus (1993) described the adaptive value of problem-focused versus emotion-focused coping as follows:

> Of the two functions of coping, problem-focused and emotion-focused, there is a strong tendency in western values to venerate the former and distrust the latter. Taking action against problems rather than reappraising the relational meaning seems more desirable. Nevertheless, there is ample evidence that under certain conditions – particularly, those in which nothing useful can be done to change the situation – rational problem-solving efforts can be counterproductive, even likely to result in chronic distress when they fail; then emotion-focused efforts would offer the best coping choice (p. 238).

Based on the above, the adaptive value of different coping strategies seems to be highly dependent on context. Consequently, Lazarus (1993) argued that coping research needed to focus on the outcomes of specific coping strategies under various circumstances.

2.2 THE BRIEF COPE INVENTORY

Carver et al. (1989) – a group of American researchers specializing in behavioural self-regulation – agreed with Lazarus (1984) that context played an important role in the outcome of certain coping strategies. However, they also considered Lazarus' (1984) coping theory overly simplistic. Carver et al. (1989) argued that their research on behavioural self-regulation had demonstrated that there were more categories of coping than just problem-focused and emotion-focused coping. Consequently, they considered the Ways of Coping Questionnaire too narrow in its scope. Based on their theory that people use a diverse and varied range of coping responses to manage stress Carver et al. (1989) decided to develop a new measure of coping: the Cope Inventory (Carver, 1997a; Carver et al., 1989; Carver & Scheier, 1981, 1990).

This COPE Inventory was based on a combination of Lazarus' (1984) model of coping, the existing literature on other coping measures, and Carver and Scheier's (1981, 1990) own model of behavioural self-regulation. As such, the COPE Inventory offered a broader measure of coping (Carver, 1997b; Carver et al., 1989). The original COPE Inventory is a comprehensive (but lengthy) 60-item questionnaire with good psychometric properties (Carver, 1997b). In the years following the development of the COPE Inventory, Carver et al. (1997b) noticed there was demand for a briefer version. As a result, Carver et al. (1997a) developed the Brief COPE Inventory as an alternative. The Brief COPE Inventory made it possible to assess a significant array of coping strategies (measuring 14 dimensions of coping) and taking only a fraction of the time it takes to complete the original COPE Inventory (Carver, 1997b). The 14 coping subscales that are part of the Brief COPE Inventory include active coping, planning, positive reframing, acceptance, humour, using instrumental support, using emotional support, religion, self-distraction, self-blame, denial, behavioural disengagement, venting, and substance use. The psychometric properties of the Brief COPE Inventory are comparable to those of the COPE Inventory (Carver, 1997b) and will be discussed under Methods.

2.3 PREVIOUS RESEARCH USING THE BRIEF COPE INVENTORY

Previous research (using the Brief COPE Inventory and PSS-10) has examined coping in relation to various stressors, from chronic illness to natural disasters (Carver, 1997b; Cohen et al., 1983; Zeidner & Endler, 1996). Some of this previous research on coping with natural disasters has focused on the relationship between certain coping strategies and different forms of psychological distress (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010).

In assessing coping strategies, several natural disasters studies have categorized coping strategies as either problem or emotion-focused (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). This categorization has been largely inspired by Lazarus (1993) description of adaptive versus maladaptive coping strategies. It was, however, never envisioned by the developer of the Brief COPE Inventory, who instead recommended examining each of its 14 coping dimensions separately in relation to other variables (such as psychological distress; Carver, 1997a).

Consequently, most researchers have categorized the Brief COPE's coping strategies based on their discretion (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). Firstly, Glass et al. (2009) divided the coping subscales into problem-focused coping (including active coping, planning, using instrumental support, using emotional support, religion, venting, positive reframing, humour and acceptance) and avoidant coping (including self-distraction, denial, behavioural disengagement, self-blame and substance use). Glass et al. (2009) subsequently examined how these two categories of coping (problem-focused versus avoidant coping) affected psychological distress in Hurricane Katrina survivors. They found that both avoidant coping and problem-focused coping were positively associated with PTSD symptoms. Whereas Glass et al. (2009) had rightly anticipated that avoidant-coping would be positively associated with PTSD symptoms, these findings contradicted their hypothesis that problem-focused coping would have a negative association with PTSD. Glass et al. (2009) argued that this unexpected finding could be related to the uncontrollability of Hurricane Katrina.

Stratta et al. (2014) examined the relationship between coping and suicidal ideation in 343 adolescent survivors of the 2009 earthquake in L'Aquila (Italy). Stratta et al. (2014) divided the 14 coping subscales of the Brief COPE over two categories of coping: problem-focused and emotion-focused coping. Whereas problem-focused coping comprised active coping,

acceptance, religion, planning, positive reframing, using instrumental support, using emotional support and humour, the emotion-focused coping subscale consisted of self-distraction, venting, self-blame, behavioural disengagement, denial and substance use. Stratta et al. (2014) found that emotion-focused coping was significantly higher in adolescents who screened positive for suicidal ideation, compared to adolescents who had a negative suicidal screen. In discussing their results, Stratta et al. (2014) argued that emotion-focused coping is often considered less effective at managing stress than problem-focused coping. As emotion-focused coping does not directly address the problem at hand, suicide can become a way to escape.

A year later, Stratta et al. (2015) published another article on coping with the aftermath of the earthquake in L'Aquila (Italy), using the Brief COPE Inventory in a sample of 371 students. For this study, Stratta et al. (2015) distinguished between positive coping, emotional coping, and disengagement coping. Positive coping comprised planning, positive reframing, active coping and acceptance; emotional coping included venting, self-blame, using emotional support and using instrumental support; and disengagement coping consisted of humour, behavioural disengagement, substance abuse, religion and denial. Stratta et al. (2015) found that emotional coping lead to an "increase of clinical or subclinical stress spectrum symptoms" (p. 59). Interestingly, disengagement coping was positively correlated with emotional coping but did not directly affect the outcome (i.e. clinical or subclinical stress spectrum symptoms). Based on their results, Stratta et al. (2015) concluded that due to the lack of control people experience in the aftermath of a natural disaster, emotional regulation is the most widely used coping strategy.

This conclusion was shared by Yang et al. (2010), who studied the coping strategies of adolescent survivors of the 2008 Wenchuan earthquake in China. Yang et al. did not use the Brief COPE Inventory to measure coping strategies, but the Coping Style Scale for Middle School Students (CSS-MSS; which is based on Lazarus' and Folkman's theory of coping and designed specifically for Chinese middle school students; Yang et al., 2010). Yang et al. found that whereas emotion-focused coping significantly and positively predicted psychological problems, problem-focused coping was not significantly associated with psychological distress. Yang et al. concluded that: "in our study, … the devastating earthquake was completely uncontrollable … for the adolescents in this situation, problem-focused coping had little effect on their psychological condition, while emotion-focused coping could make them feel more pessimistic" (p. 1226).

Bistricky et al. (2019) reported similar results in their study on the coping strategies of 801 Hurricane Andrew survivors in relation to symptoms of depression and PTSD. Bistricky et al. (2019) divided the Brief COPE Inventory's coping subscales over three categories: positive coping, emotional coping and avoidant coping. Only the effects of positive coping and avoidant coping on depression and PTSD were studied by Bistricky et al. (2019) In their study, positive coping comprised acceptance, active coping, planning and positive reframing, whereas denial, behavioural disengagement, self-distraction, self-blame, and substance use made up emotional coping strategies. Bistricky et al. (2019) found that avoidant coping significantly and positively predicted symptoms of depression and PTSD.

In conclusion, based on the above, the consensus seems to be that in the aftermath of a natural disaster, the use of emotion-focused and/or avoidant coping strategies are associated with higher levels of psychological distress (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). Unlike most researchers hypothesized, problem-focused coping strategies do not significantly predict a reduction in psychological distress in the direct aftermath of a natural disaster (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). Glass et al. (2009) argued that the uncontrollability of the 2005 Hurricane Katrina was the likely reason why problem-focused coping strategies did not reduce PTSD symptoms. Yang et al. (2010) reached the same conclusion after the 2008 Wenchuan earthquake in China.

In most of the above-mentioned studies, active coping, planning, positive reframing and acceptance constitute problem-focused coping strategies (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). Denial, substance use, behavioural disengagement, self-blame and self-distraction are classified as avoidant or emotion-focused coping strategies in most studies (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). The different categorizations of coping strategies across natural disaster studies are displayed in Table 1 below.

Table 1

Conceptualizations of the Brief COPE Inventory's coping strategies in four different studies

Category	Glass et al. (2009)	Stratta et al. (2014)	Strata et al. (2015)	Bistricky et al. (2019)
Problem-focused	Active Coping Planning Positive reframing Acceptance Instrumental Support Emotional Support Religion Humour Venting	Active coping Planning Positive reframing Acceptance Instrumental support Emotional support Religion Humour	Active coping Planning Positive reframing Acceptance	Active coping Planning Positive Reframing Acceptance
Emotion-focused		Venting Self-blame Denial Self-distraction Substance use Behavioural disengagement	Venting Self-blame Emotional support Instrumental support	
Avoidant	Denial Substance use Behavioural disengagement Self-distraction Self-blame		Denial Substance use Behavioural disengagement Humour Religion	Denial Substance use Behavioural disengagement Self-distraction Self-blame

2.4 STRESS AND THE PSS-10

The post-disaster research that was discussed in the previous paragraphs focused on the effect of coping strategies on clinical symptoms of psychological distress (including PTSD) in the aftermath of a natural disaster. According to the criteria of the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5), an individual must experience a specific set of symptoms for more than one month after exposure to a traumatic event (Saddock & Saddock, 2015). Consequently, screening for PTSD is not appropriate when a stressor is ongoing (such as during a pandemic). In such cases, a valid and reliable measure of perceived stress like the Perceived Stress Scale-10 (PSS-10) can be used to study the relationship between coping strategies and stress (Cohen et al., 1983).

The PSS-10 consists of 10 statements that respondents are asked to rate on a 5-point Likert scale (varying from 0 never, to 1 almost never, 2 sometimes, 3 fairly often, and 4 very often). Participants are asked to indicate how nervous, upset, stressed, "in control" and/or angry they have felt during the last four weeks. According to Cohen et al. (1983), the PSS-10 has adequate psychometric properties. Even though the PSS-10 is a reliable and valid measure of perceived stress, it is not a diagnostic tool of stress-related disorders like PTSD and depression (Cohen et al., 1983). Nevertheless, past research has found significant associations between a high PSS-10 score and psychological distress (Hewitt et al., 1992; Qu et al., 2012). Hewitt et al. (1992), for example, concluded that high PSS-10 scores were significantly correlated with depression in a sample of psychiatric patients. Several studies have used the Brief COPE Inventory in combination with the PSS-10 during and shortly after a natural disaster (Oni et al., 2015; Qu et al., 2012; Samios & Hollows, 2012). Qu et al. (2012) found that perceived stress was significantly correlated with both depression and PTSD in a sample of women who survived the 2008 Sichuan earthquake in China. As such, the PSS-10 appears to be an adequate measure of stress in the aftermath of a natural disaster.

2.5 ONLINE COPING STRATEGIES

A new niche within coping research focuses on the association between online coping strategies and stress or wellbeing. According to Van Ingen et al. (2016), few studies have been conducted on the use of online coping strategies in relation to wellbeing, even though the use of online coping strategies is rising. To find out how the use of multiple online and offline coping strategies related to wellbeing, Van Ingen et al. created a new measure based

on the Brief COPE Inventory, which they administered to a sample of 5,734 participants in the Netherlands. For their study, Van Ingen et al. reformulated the items of the Brief COPE Inventory to refer explicitly to online and offline coping strategies. For example, item 1 ("I have been turning to work or other activities to take my mind off") was changed to: "I turned to the internet to take my mind off things" (van Ingen et al., 2016, p. 517). Structural Equation Modelling showed that online gaming was significantly associated with the Brief COPE Inventory's dimension of mental disengagement, whereas searching for information online was associated with problem-focused coping. In addition, the more time participants spent on social network sites, the higher they scored on emotional-coping. The results of Van Ingen et al.'s study showed that online mental disengagement and online socioemotional coping were inversely related to life-satisfaction, whereas the effect of online problem-focused coping strategies on wellbeing was not significant. Van Ingen et al. concluded:

> The overall picture of online coping that emerged is not optimistic … Although some of the correlations were not significant, their signs were consistently negative in the case of online coping, whereas the signs of the offline coping correlations were positive. The negative associations between online disengagement and well-being were the most consistent ones; that is, those who reported higher levels of online disengagement reported lower levels of life satisfaction, self-esteem, and optimism. Online problem-focused coping was not linked to well-being. Off-line problem-focused coping, on the other hand, was linked to self-esteem and optimism and to a lesser extent to life satisfaction. Most surprising are the negative correlations between online socioemotional coping and well-being. Although these correlations are small, this dimension of online coping was found to be inversely related to life satisfaction, self-esteem, and optimism. (p. 523)

Van Ingen et al.'s (2016) results are in line with the findings of a meta-analysis that was conducted by Huang (2010). Huang found that internet use had a small negative effect on psychological wellbeing in a total sample of 21,258 participants. However, a meta-analysis by Rains and Young (2009) on the effect of formal computer-mediated support group interventions on health outcomes revealed more positive results. More specifically, Rains and Young found that participation in a computer-mediated support group intervention resulted in increased quality of life and decreased depression.

2.6 THE COVID-19 RESTRICTIONS IN NEW ZEALAND

For the current study, the COVID-19 restrictions in New Zealand constituted the event (or stressor) in accordance with Lazarus' (1984) process model of coping. These restrictions were part of a four-level Alert System that the New Zealand Government (2020a) introduced on the 21st of March 2020 to manage the growing outbreak of COVID-19. The four different Alert Levels in New Zealand's Alert System are displayed in Table 2 below.

Table 2

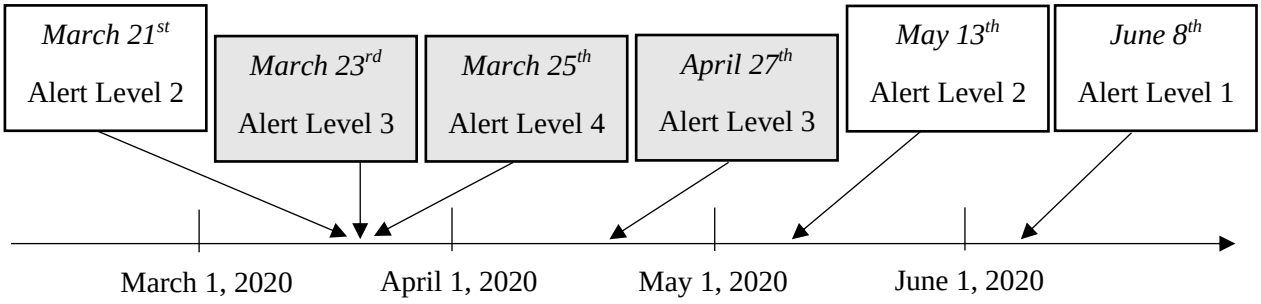
COVID-19 Alert System of the New Zealand Government (2020)

Alert Level	Name	Description
Alert Level 1	Prepare	COVID-19 is contained in New Zealand
Alert Level 2	Reduce	COVID-19 is contained in New Zealand, but the risk of community transmission remains
Alert Level 3	Restrict	High-risk that COVID-19 is not contained in the country; multiple cases of community transmission
Alert Level 4	Lockdown	COVID-19 is not contained within New Zealand; widespread outbreaks

When the Alert Level System was introduced on March 21st, 2020, New Zealand initially moved into Alert Level 2. Only two days later, on March 23rd, the New Zealand Government determined that community transmission was occurring in the country and New Zealand moved into Alert Level 3 (New Zealand Government, 2020; Strongman, 2020). On March 25th, the country moved into its strictest and highest Alert Level 4 (New Zealand Government, 2020a). This meant a nationwide lockdown that lasted for more than a month, until the 27th of April (New Zealand Government, 2020a). New Zealand subsequently moved back to Level 3 (New Zealand Government, 2020a). The country remained at Level 3 for another two and a half weeks until the National State of Emergency was lifted on the 13th of May (New Zealand Government, 2020a). It then moved back into Alert Level 2 (New Zealand Government, 2020a). A summary of the specific dates on which the different Alert Levels came into force in New Zealand can be viewed in Figure 3 below.

Figure 3.

New Zealand Government (2020) COVID-19 Alert Levels between March and June 2020



The lowest Alert Level – Alert Level 1 – applies when COVID-19 is contained in New Zealand and there are no restrictions in movement (New Zealand Government, 2020a). When cases of COVID-19 are occurring, but the disease is contained, Alert Level 2 applies. During Alert Level 2, there are restrictions to the number of people that can gather and New Zealanders are required to practise physical distancing when out in public (New Zealand Government, 2020a). Alert Level 3 comes into force when there is community transmission of COVID-19 in the country (New Zealand Government, 2020a).

In New Zealand, both Alert Level 3 and 4 are often informally referred to as "lockdown". Under these Alert Levels, New Zealanders were instructed to stay home and self-isolate in their bubbles. The term "bubble" was used in New Zealand to refer to the members of a single household. Under Alert Level 4, New Zealanders were only allowed to leave their bubble for essential personal movement such as a trip to the supermarket, pharmacy, or a medical centre (New Zealand Government, 2020a). All non-essential services were closed under Alert Level 4, including businesses, pools, libraries, and educational facilities (New Zealand Government, 2020a). Consequently, all children in New Zealand were home from school, while their parents were expected to work from home unless they worked in an essential service (like a pharmacy, hospital, or supermarket). In the media, New Zealand's Alert Level 4 Lockdown was described as one of the "strictest" lockdowns in the world (Cousins, 2020; Gunia, 2020; Walter, 2020).

Under Alert Level 3, the above-mentioned restrictions remained mostly the same with a few exceptions. Under this Alert Level, New Zealanders were allowed to slightly extend their bubble to include close family, a caregiver, or to support isolated people (New Zealand

Government, 2020a). Children needed to remain at home unless this was impossible (such as for the children of essential service workers) and employed parents were instructed to continue working from home (New Zealand Government, 2020a). Thus, educational facilities reopened only for parents who worked in an essential service or employed parents with no other caregiver options (New Zealand Government, 2020a). Like under Alert Level 4, New Zealanders were instructed to stay home and only leave their bubble for essential personal movement.

According to the media, being cooped up at home 24/7 resulted in significant levels of stress in New Zealand-based parents (Newshub, 2020). Several journalists reported that the lockdown led to family conflict and strained relationships (Salisbury, 2020; Thomas, 2020). Others went further and wrote that being confined to home brought with it family violence and serious mental health disorders like depression (Perrott, 2020; Young, 2020). Especially employed parents were said to have a difficult time, needing to combine work from home with child care (Young, 2020). Health Navigator New Zealand (2020) started its guidelines on working from home for parents during the pandemic as follows:

> "If you are a parent and now find yourself having to work from home because of the COVID-19 lockdown, stop right now and take a deep breath. Deep breaths, in and out, over and over. Maybe this is all you need to do, and as far as you need to read, right now."

Working from home with a toddler may have been virtually impossible for many parents, whereas parents of school-aged children struggled to combine their remote work with the assistance their kids needed with their home learning. Various media reported that parents found it hard to combine their new roles at home, which for many included being a parent, a teacher, a spouse and a colleague (Salisbury, 2020). On top of this, there was a lack of external support for families, especially under Alert Level 4 in which bubbles were strictly limited to the direct members of a single household. Thus, parents were unable to bring in grandparents or a nanny while they were working from home. For parents working in an essential service, this lack of support may have been extra difficult under Alert Level 4 (Mental Health Foundation, 2020). Under Alert Level 4, schools were closed and parents were unable to bring a caregiver in (New Zealand Government, 2020a Ministry of Education New Zealand, 2020). Moreover, New Zealand parents needed to juggle all of the above-mentioned challenges in a context of fear: the threat of COVID-19, uncertainty about the

future, and worry regarding the possibility of losing paid employment. Table 3 below displays the possible challenges that New Zealand-based parents may have faced as a consequence of the COVID-19 restrictions.

Table 3

Potential stressors for New Zealand-based parents in relation to the COVID-19 restrictions.

COVID-19 restrictions	Potential stressors
Self-isolation at home	Strain on close relationships.
	Marital discord.
	Decreased mental wellbeing/increased in perceived stress.
	Loneliness (single parents).
	Increased distress (such as anxiety) in children.
	No ability to engage external support.
	Lack of normal daily structure.
	Small, cold or otherwise distressing self-isolation space.
	Missing normal activities outside the house.
	Missing family and friends outside bubble.
	Worsening of pre-existing mental health problems.
Working from home	Needing to juggle work with childcare.
	Constant distractions/decreased ability to concentrate.
	Difficulties in setting up a remote work environment.
	Limited or no access to a computer or internet.
	Threat of losing paid employment.
Learning at home	Difficulties in helping kids with their learning from home.
	Confusion and discord in family around roles and expectations (parent vs. "temporary home schoolteacher").
	Difficulties juggling support of children in their learning with other responsibilities (such as work from home).
	Limited or no access to a computer or internet.
Other	Managing own distress (such as fear, anxiety, worry, hopelessness, or depression) in relation to COVID-19.
	Managing distress of children in relation to COVID-19.

To manage their home confinement, parents in New Zealand were actively advised to use structure and online coping strategies (Clendon, 2020; Jones, 2020; Korb, 2020; Ministry of Education New Zealand, 2020; Kate C. Prickett et al., 2020; Young, 2020). New Zealanders were repeatedly told by the Government that physical distancing did not mean social distancing (New Zealand Government, 2020b). Even though people were urged to maintain physical distance from each other, the New Zealand Ministry of Health (2020b) encouraged people to stay in touch with family and friends outside their bubble through online resources such as FaceTime, Zoom and Skype (Ministry of Health NZ, 2020b). The use of online resources was also recommended to stay fit and seek out help in case of psychological distress (Ministry of Health NZ, 2020b). In addition, both the Government and mental health professionals encouraged parents to use structure (like routines and timetables) to manage the impact of the lockdown on their families (Clendon, 2020; Korb, 2020; Ministry of Education New Zealand, 2020).

2.7 THE CURRENT STUDY

The current study aims to answer the question of how New Zealand-based coped with the impact of the COVID-19 restrictions and how this related to their levels of perceived stress. Perceived stress will be measured using the PSS-10 whereas coping strategies will be measured with the Brief COPE Inventory and an additional set of questions that looks at the use of online coping strategies and structure. The design of the current study will be discussed in more detail in the Methods section.

The results of this study will be compared to the findings of previous research on coping with natural disasters. Whether the COVID-19 pandemic can be classified as a natural disaster has been the subject of discussion (Revet, 2020). According to the WHO; “disasters are events that occur when significant numbers of people are exposed to hazards to which they are vulnerable, with resulting injury and loss of life, often combined with damage to property and livelihoods” (Wisner & Adams, 2020, p. 4). The COVID-19 pandemic seems to meet these criteria. Ever since the virus was discovered in December 2019, it has resulted in illness, injury, and loss of life to significant numbers of people worldwide (ECDC, 2020). In addition, like the Wenchuan earthquake and Hurricane Katrina, the current COVID-19 pandemic can be conceptualized as an uncontrollable event (Glass et al., 2009; Yang et al., 2010). Unfortunately, the pandemic has not yet been brought under control (ECDC, 2020).

Several recent studies have compared the impact of the current COVID-19 pandemic to that of previous natural disasters (Blanc et al., 2020; Bonaccorsi et al., 2020; Esterwood & Saeed, 2020; Lei & Klopack, 2020; Prime et al., 2020; Shakespeare-Finch et al., 2020). However, there may be contextual differences between the COVID-19 pandemic and other natural disasters. As Lazarus (1993) argued, the outcomes of specific coping strategies may vary under different circumstances, and there may be critical differences between coping with different natural disasters. Coping with the COVID-19 restrictions in New Zealand may be different from coping with the aftermath of a hurricane. Whereas planning may be ineffective at reducing stress during any natural disaster, other problem-focused coping strategies may be helpful in the context of a pandemic (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2015; Yang et al., 2010). Consequently, studying the effect of coping on stress in the context of the COVID-19 restrictions in New Zealand may deliver an important contribution to (post-disaster) coping research.

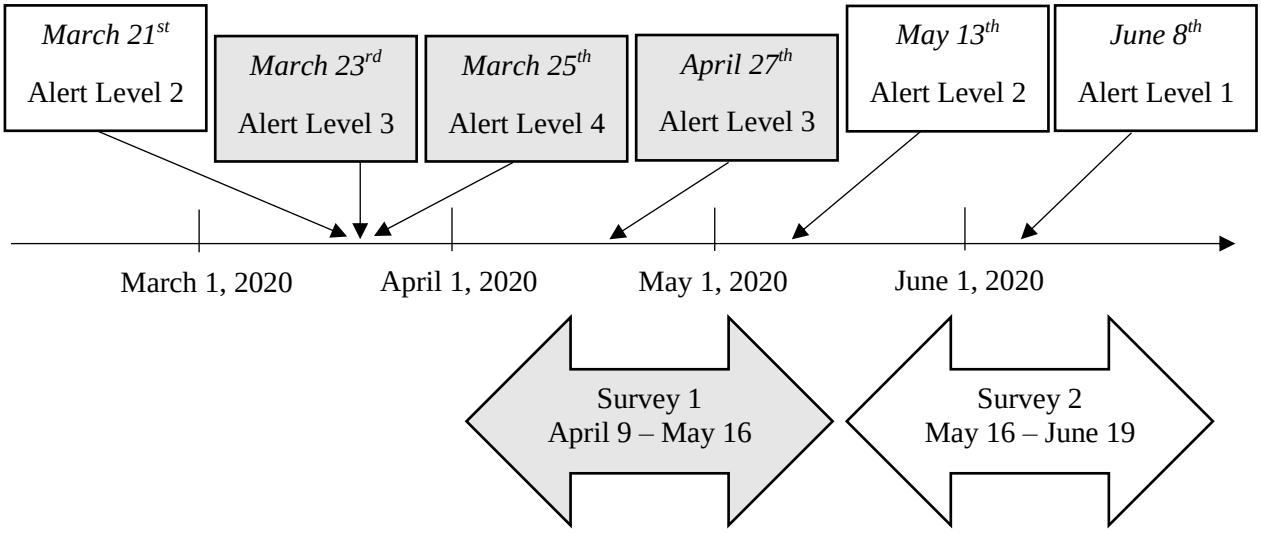
2.8 RESEARCH QUESTIONS

The current study aims to find out in which ways the COVID-19 restrictions have affected New Zealand-based parents (with questions on personal circumstances and impact of the lockdown), how much stress they have experienced during the lockdown (PSS-10), and what strategies parents have used to manage their family life (Brief COPE Inventory and extra questions on the use of online coping strategies and structure). As such, the current study is largely exploratory. It does not intend to test theory but aims to find out how parents have experienced the 2020 COVID-19 restrictions in New Zealand.

The survey that was conducted for this study was administered at two time points. The first survey (Survey 1) asked participants to consider their coping strategies and levels of perceived stress over the four weeks during which New Zealand was in Alert Level 4 and 3. The second survey (Survey 2) asked participants to consider their coping strategies and stress levels over the four weeks during which New Zealand was in Alert Level 2 and 1. Figure 4 below shows the periods that were covered by Survey 1 and Survey 2.

Figure 4.

P*eriods covered by Survey 1 and Survey 2*



Consequently, an important focus of the current study will be how the experiences of New Zealand-based parents with the COVID-19 restrictions may have changed over time; when New Zealand switched from the strict Alert Levels 4 and 3 (i.e. lockdown) to the more lenient Alert Levels 2 and 1 The following research questions will be addressed in the current study:

1. What personal circumstances predicted perceived stress (PSS-10) in New Zealand-based parents under Survey 1?

Questions on personal circumstances covered – amongst others – whether parents worked from home and experienced a reduction in income during COVID-19 restrictions. This will be discussed in more detail in the Methods section.

2. Did appraisal of the COVID-19 restrictions as "positive", "negative" or "mixed" predict perceived stress (PSS-10) in New Zealand-based parents under Survey 1?

For the current study, parents were asked whether they experienced the impact of the COVID-19 restrictions on their family as mostly "positive", "negative" or "mixed" (both positive and negative). Research question 2 examines whether this appraisal predicted perceived stress.

3. What effects of the COVID-19 restrictions predicted perceived stress (PSS-10) in New Zealand-based parents under Survey 1 and Survey 2?

This research question looks at the way in which the lockdown affected New Zealand-based families and how this related to perceived stress. To measure the effects of the lockdown, an "effects matrix" was created that comprised questions on mental wellbeing and relationships. This matrix will be discussed in more detail under Methods.

4. Which coping strategies (measured with the Brief COPE Inventory) predicted perceived stress in New Zealand-based parents under Survey 1 and Survey 2?

This question examines which dimensions of coping as measured with the Brief COPE Inventory predicted perceived stress under both Survey 1 and Survey 2.

5. What coping strategies (measured with the Extra Coping Questions) predicted perceived stress in New Zealand-based parents under Survey 1 and 2?

Another important focus of the current study is to find out whether the use of structure and online coping strategies predicted perceived stress in New Zealand-based parents. These additional coping strategies topics were covered in a set of Extra Coping Questions, which will be discussed in the Methods section.

6. How did the effect of coping strategies on perceived stress change over time in New Zealand-based parents?

The last research question of the current study looks at how coping strategies and perceived stress may have changed over time; when New Zealand moved from Alert Levels 4 and 3 (Survey 1) to Alert Levels 2 and 1 (Survey 2). This research question focuses on changes in coping strategies that were measured with the Brief COPE Inventory and perceived stress as measured with the PSS-10.

3 METHODS

3.1 PARTICIPANTS

Participation in the current study was open to all New Zealand-based parents aged 18 years or over, with children under 18 years of age living in their household. The invitation to participate (Appendix 1) in the study was shared informally on social media, including Facebook and Instagram. The advertisement was shared in several New Zealand-based Facebook groups that focused on parenting during lockdown. Participants were encouraged to share the link to the survey. In addition, a Facebook page was created to advertise the study.

A total number of 267 participants completed Survey 1. Participants who responded to fewer than 75% of the items (excluding information on demographics) were deleted. This resulted in the deletion of 25 participants. Consequently, the final sample for Survey 1 consisted of 242 participants. Out of these 242 participants, a total of 137 participants completed Survey 2 as well. There were 11 participants in Survey 2 who missed more than 25% of the items on the main scales of the study and one participant who constituted an outlier (with non-existent answers to the PSS-10 ordinal scale). Thus, the final sample for Survey 2 consisted of 125 participants.

The majority of the participants in the current study identified as female (*N* = 231 or 95.5%), versus only 10 male (4.1%) and 1 non-binary (.4%). The age of the participants ranged from 24 to 64 (*M* = 39.6 and *SD* = 6.3). Most participants held a postgraduate degree (*N*=113 or 46.7%) as can be seen in Table 4 below.

Table 4

Participants' Level of Education

Level of Education	*N*	Percentage
Postgraduate degree	113	46.7%
Undergraduate degree	75	31%
Certificate/apprenticeship	35	14.5%
High School diploma	11	4.5%
Did not finish High School	7	2.9%

The majority of the participants identified as New Zealand European (73.1%). A breakdown of the ethnicities of the participants in this study can be found in Table 5 below.

Table 5

Participants' Ethnicities

Ethnicity	*N*	Percentage
New Zealand European	177	73.1%
Māori	10	4.1%
Samoan	1	.4%
Tongan	1	.4%
Chinese	2	.8%
Indian	5	2.1%
Other Asian	1	.4%
European	29	12%
North American	4	1.7%
South American	1	.4%
Other	11	4.5%

Most participants identified as the main caregiver of the children in their bubble (*N* = 181 or 74.8%) and 60 participants reported having a shared caregiving arrangement (24.8%). The marital status of most participants was married (*N* = 173 or 71.5%) as can be seen in Table 6.

Table 6

Participants' marital status

Marital Status	*N*	Percentage
Married	173	71.5%
De facto	40	16.5%
Divorced or separated	20	8.3%
Single	8	3.3%
Widowed	1	.4%

Most participants reported living urban (*N* = 199 or 82.2%) versus 43 participants who lived rural (17.8%). All participants except for 1 reported having access to a computer, laptop or tablet. Out of the 242 participants in Survey 1, 239 (98.8%) reported having internet access, whereas 3 participants (1.2%) indicated they had limited internet access. Participants were based in DHB regions all over New Zealand, as can be seen in Table 7.

Table 7

Participants' DHB regions

DHB region	*N*	Percentage
MidCentral	48	19.8%
Auckland	36	14.9%
Waitemata	31	12.8%
Canterbury	22	9.1%
Whanganui	20	8.3%
Capital and Coast	16	6.6%
Waikato	12	5%
Bay of Plenty	11	4.5%
Southern	10	4.1%
Counties Manukau	8	3.3%
Nelson Marlborough	6	2.5%
Hawkes Bay	4	1.7%
Hutt Valley	4	1.7%
Lakes	4	1.7%
Northland	4	1.7%
Wairarapa	3	1.2%
Taranaki	2	.8%
South Canterbury	1	.4%

The number of adults living in the bubbles of the participants ranged from 1 to 6 (*M* = 2.1 and *SD* = .68). The number of children that participants reported having in their household ranged from 1 to 5 (*M* = 2.1 and *SD* = .8). The majority of participants (*N* = 141, 58.3%) reported having 2 children as can be seen in Table 8.

Table 8

Participants' number of children

Number of children	*N*	Percentage
1 child	44	18.2%
2 children	141	58.3%
3 children	42	17.4%
4 children	13	5.4%
5 children	2	.8%

The ages of the participants children ranged from 0 to 17. The mean ages of the participants' children are displayed in Table 9 below.

Table 9

Ages of the participants' children

Child	Age range	Mean age	SD
Child 1	0-17	7.9	4.2
Child 2	0-17	7.4	4.1
Child 3	0-17	6.6	4.2
Child 4	0-13	5.9	4.1
Child 5	0-3	1.5	2.1

3.2 DESIGN

The current study comprised an online survey and used a within-subjects repeated-measures design with two time points. Full Ethics permission was granted by Massey University's Human Ethics Southern B Committee (SOB 20/05). Survey 1 was available online between May 7th and May 16th, 2020. In Survey 1, participants were asked to consider their coping strategies and levels of perceived stress over the previous four weeks during which New Zealand was in Alert Level 4 and 3. As part of Survey 1, parents were asked to indicate whether they were willing to complete the same survey again in four weeks. The parents who

provided consent to participate in the second survey received an invitation for Survey 2 on June 12th, 2020. On this date, New Zealand was in Alert Level 1. The second survey also asked participants to consider their coping strategies and stress levels over the previous four weeks (during which New Zealand was in Alert Level 2 and 1). Table 10 below shows the dates of administration of both Survey 1 and 2 and the Alert Levels that were covered in these respective surveys.

Table 10

Dates of administration of Survey 1 and 2 in relation to Alert Levels in New Zealand

Survey	Date of administration	Alert Levels covered
Survey 1	May 7th to May 16th 2020	Alert Level 4 and Alert Level 3
Survey 2	June 12th to June 19th 2020	Alert Level 2 and Alert Level 1

The variables that were measured for this study will be discussed in more detail under the Materials section below. For all statistical analyses that were conducted, the dependent variable included total PSS-10 score. The independent variables varied per analysis and consisted of the items on the four main scales that were used in the current study. Table 11 below shows an overview of the dependent and independent variables that were measured in the current study.

Table 11

Overview of measured dependent and independent variables in the current study

Research questions	Independent variables	Dependent variable
Personal circumstances	Personal Circumstances Matrix (ratio)	PSS-10 score (ratio)
Appraisal	Appraisal Question (nominal)	PSS-10 score (ratio)
Effects of the Restrictions	Effects Matrix (ordinal)	PSS-10 score (ratio)
Coping Strategies	Brief COPE Inventory (ordinal)	PSS-10 score (ratio)
Online coping and structure	Extra Coping Questions (nominal)	PSS-10 score (ratio)

3.3 MATERIALS

To assess how New Zealand-based parents coped with the impact of the COVID-19 restrictions, an online survey was created in Qualtrics (see appendix 26). This survey consisted of four sections: (1) your COVID-19 bubble, (2) impact of the COVID-19 restrictions, (3) coping strategies and (4) perceived stress.

The first section – "your COVID-19 bubble" – covered demographics as well as the characteristics of the participants' COVID-19 households (which were referred to as bubbles in New Zealand). Items that were included in this section covered age, gender, marital status, ethnicity, highest level of education, DHB region, whether the participant lived rural or urban, the number and age of adults and children living in the household, and whether participants were normally the main caregivers of these children. Ethnicity was included to determine the heterogeneity of the study sample. In addition, participants were asked whether their household had access to a computer and internet. At the end of the first section, participants were asked to complete a matrix table that covered the potential consequences of the lockdown on their employment and income. This matrix will be called the Personal Circumstances Matrix in the current study and is displayed in Table 12 below. Participants were asked to indicate which of the eight statements in the matrix applied to them, their partner, and/or another adult in their bubble since the start of the lockdown in New Zealand.

Table 12

Personal Circumstances matrix on the effects of the lockdown on income and employment

Item	Period	Question
		Have you, your partner, or another adult in your bubble…
(1)	The last four weeks	…been gainfully employed?
(2)	The last four weeks	…worked as an essential service worker?
(3)	The last four weeks	…worked from home?
(4)	The last four weeks	…studied from home?
(5)	The last four weeks	…lost or left paid employment?
(6)	The last four weeks	…had hours of paid employment reduced?
(7)	The last four weeks	…had income reduced?
(8)	The last four weeks	…spent more time at home than usual?

Section 2 of the survey addressed the impact of the COVID-19 restrictions on the lives of the participating parents. The first item in this section asked parents to indicate whether they would describe the impact of the lockdown on their family as (1) “mostly positive”, (2) “mostly negative” or (3) “mixed” (both negative and positive). This item is called the Appraisal Question in the current study.

For the second item in section 2 of the survey, parents were asked to complete a matrix question. This matrix question will be referred to as the Effects Matrix in the current study and contained ten statements on the possible effects of the COVID-19 restrictions on daily life, which participants were asked to rate on a 5-point Likert scale. Six items on the Effects Matrix (item 2, 3, 7, 8, 9 and 10) were reverse coded to obtain a reliability score for this scale. However, to interpret the effects of the individual items of this Effects Matrix on PSS-10 score, the above-mentioned items were not reverse-coded (i.e. the original scores on items 2, 3, 7, 8, 9, and 10). Consequently, a higher score on items 2, 3, 7, 9 and/or 10 meant that these “positive effects” items were true for the participant to a larger extent, whereas a higher score on items 1, 4, 5 and/or 6 meant that these negative effects were for the participants to a larger extent. This format was chosen as reverse coding the individual items of the Effects Matrix in a multiple linear regression appeared to be unnecessarily complicated (in terms of interpretation). The Effects Matrix can be found in Table 13.

Table 13

Effects Matrix comprising ten statements on the effects of the lockdown (both positive and negative) which participants were asked to rate on a five-point Likert scale (0=never, 1=almost never, 2=sometimes, 3=fairly often, 4=often)

Item	Category	Question
(1)	Negative	It has a negative effect on my/our mental wellbeing
(2)	Positive	It has a positive effect on my/our mental wellbeing
(3)	Positive	It enhances the relationships within our bubble
(4)	Negative	It puts a strain on the relationships within our bubble
(5)	Negative	We miss face-to-face contact with friends/family outside our bubble
(6)	Negative	We miss our usual activities outside the house
(7)	Positive	It gives our family the chance to focus on "what really matters"
(8)	Positive	We experience less stress from work and/or school
(9)	Positive	It allows our family to slow down
(10)	Positive	We spend more time together as a family

In formulating the above-mentioned statements, the aim was to offer a mix of both positive and negative options for participants to choose from (e.g. "the COVID-19 restrictions have a negative effect on my/our mental wellbeing" versus "the COVID-19 restrictions have a positive effect on my/our mental wellbeing"). Only ten statements were included to keep this section small and straightforward. The rationale behind this decision was to keep the study focused on coping strategies and minimize the response burden as much as possible during an already challenging time. The ten statements were formulated and based on the assumption that families would spend more time at home together as a consequence of the lockdown. Spending more time at home could be experienced as negative by some, and positive by others. In formulating the five Likert scale options (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, and 4 = often) the format of the PSS-10 was followed to make it easier to compare scores in statistical analyses. As can be seen in Table 8, questions 1, 4, 5 and 6 refer to potential negative effects of the COVID-19 restrictions in New Zealand, whereas questions 2, 3, 7, 8, 9 and 10 cover positive effects.

Section 3 of the survey focused on coping strategies and comprised the items of the Brief COPE Inventory (Carver, 1997a). The Brief COPE Inventory (appendix 2) is a 28-item that assesses how people respond to stress (Carver, 1997a). It was developed by Charles Carver in 1997 and consists of 14 subscales (two items each) that assess 14 dimensions of coping (Carver, 1997b; Carver et al., 1989). The Brief COPE Inventory has adequate psychometric properties (Carver, 1997b). According to Carver et al. (1989), the validity and reliability of the original COPE Inventory are "acceptably high" (this includes convergent and discriminant validity, as well as test-retest and Cronbach's alpha reliability). Psychometric properties of the Brief Cope Inventory were derived from a sample of 168 adults participating in a study focused on recovery after Hurricane Andrew (Carver, 1997b). According to Carver (1997b), the results of this study indicated that the Brief COPE Inventory had adequate internal reliability, consistent with the original COPE Inventory (Carver, 1997b, p. 98). Since Carver's initial study on the Brief COPE Inventory, this measure has been studied multiple times under various circumstances, including during the aftermath of natural disasters (Bistricky et al., 2019; Mesidor & Sly, 2019; Oni et al., 2015; Samios & Hollows, 2012). The Brief COPE Inventory can be used without permission in non-commercial research (Carver, 1997a). The 14 subscales of the Brief COPE Inventory include active coping, planning, positive reframing, acceptance, humour, using instrumental support, using emotional support, religion, self-distraction, self-blame, denial, behavioural disengagement, venting, and substance use. Appendix 2 contains an overview of the 28 Brief COPE Inventory items per subscale of coping.

Participants in the current study were asked to rate each of the coping strategies of the Brief COPE Inventory on a 4-point Likert scale. The options on this Likert scale ranged from 1 (I have not been doing this at all) to 2 (I have been doing this a little bit), 3 ("I have been doing this a medium amount), and 4 (I have been doing this a lot). For the current study, the wording of statement 19 was changed slightly to: "I've been doing something to think about it less, such as watching TV, reading, daydreaming, or sleeping". The Brief COPE Inventory also includes "shopping" and "cinema visits" in item 19, which were omitted in the current study as these activities were prohibited under the COVID-19 restrictions in New Zealand.

In addition, a 29th item was added to the Brief COPE Inventory in the current study, after consultation with Massey University's cultural advisor Dr Natasha Tassell-Matamua. This 29th item read: "I have been using karakia, waiata, whakatauki, pūrākau or other mātauranga Māori and/or tikanga Māori." As New Zealand is a bicultural country, this item was included

to give participants the option of including and rating the use of Māori coping strategies in their survey answers. Previous research has shown that traditional coping strategies can play an important role in the aftermath of a natural disaster for Māori (Lambert, 2014). Even though item 29 does not cover the entire range of cultural coping strategies that Māori may have used in relation to the COVID-19 restrictions in New Zealand, adding this item may at least acknowledge the importance of culture in the coping process (within the New Zealand context).

After completion of the Brief COPE Inventory, the participants were directed to an extra set of coping questions that looked specifically at the use of structure as well as online versus offline resources by parents. These questions were included to investigate whether parents used daily routines at home to cope with the lockdown, if they homeschooled their children, and whether parents used online coping strategies. Consequently, the 16 Extra Coping Questions were designed to examine two extra domains of coping: the use of structure and the use of online resources. The questions on this scale were dichotomous (i.e. participants were asked to indicate whether or not they had used the strategies that were described in these 16 items). The Extra Coping Questions are displayed in Table 14.

Table 14

Extra Coping Questions

Category	Question
Structure	Do you stick to a daily routine/timetable?
Structure	Do you share tasks with your partner or another adult in your bubble?
Structure	If you work from home: do you use a designated space or time for your work?
Structure	If you work from home: do you use strategies to separate work from family life?
Structure	Are you currently homeschooling your child/children?
Online	If you are homeschooling: do you use online resources?
Online	Do you use online parenting resources?
Online	Do you use FaceTime/Zoom/Skype/WhatsApp to organize online playdates?
Online	Do you and your family engage in physical activity inside using online resources?
Online	Do you and your kids watch movies, series or documentaries?
Online	Do you and your children play videogames?
Online	Do you use social media to stay in touch with whānau outside your bubble?
Offline	Do you and your children read books together?
Offline	Do you and your children play together using offline resources?
Offline	Do you and your children engage in physical activities outside?
Offline	Do you and your children engage in creative activities?

The fourth and last section of the survey consisted of the PSS-10 (appendix 3) to assess the stress levels that participants perceived (Cohen, 1988). Even though the PSS-10 can be used freely in nonprofit academic research (Carnegie Mellon University, 2015), written permission was obtained from Dr Cohen to use this scale in the current study (appendix 4). The PSS-10 consists of 10 statements that respondents are asked to rate on a 5-point Likert scale. For the current study, respondents were asked to rate the PSS-10 statements based on their experiences during "the last four weeks" (Cohen et al., 1983). The PSS-10 asks participants to indicate how often they have felt nervous, "stressed", upset, angry, and "in control" during the last four weeks. The questions of the PSS-10 can be found in appendix 3.

The PSS-10 consists of six negative items (1, 2, 3, 6, 9, and 10) and four positive items (4, 5, 7, and 8). For the six negative items, each statement is scored based on the Likert scale option chosen by the participant: 0 for "Never", 1 for "Almost never", 2 for "Sometimes", 3 for

"Fairly often" and 4 for "Often" (Cohen et al., 1983). For the four positive items, these Likert scale scores are reversed with "Never" scored as 4, "Almost never" as 3, "Sometimes" as 2, "Fairly often" as 1, and "Often" as 0 (Cohen et al., 1983). Total PSS-10 score is subsequently calculated and can range from 0 to 40, with higher scores indicating higher levels of perceived psychological stress (Cohen & Janicki-Deverts, 2012).

According to Cohen et al. (1983), the PSS-10 has adequate validity and reliability. In terms of concurrent validity, Cohen et al. reported high correlations between the PSS-10 and other measures of stress (including stressful life event scales). Adequate test-retest and internal validity for the PSS-10 have been demonstrated in various studies (Cohen, 1988; Cohen et al., 1983; Cohen & Janicki-Deverts, 2012; Roberti et al., 2006). Cronbach's alphas across three probability samples in the United States were calculated at .78, .91, and .91 respectively (Cohen & Janicki-Deverts, 2012). Furthermore, various studies have demonstrated the PSS-10's predictive validity in relation to health outcomes (Cohen, 1988; Cohen et al., 1983; Cohen & Janicki-Deverts, 2012; Roberti et al., 2006).

3.4 PROCEDURE

Both the research invitation and the Facebook page included a direct link to the research survey in Qualtrics. When potential participants clicked this link, they were directed to an information sheet that contained all the necessary information on participation in this study (appendix 26). This information included the aim of the study, the criteria for participation, the kind of questions participants could expect to see in the four sections of the survey, where and how information would be stored, and the fact that participation was anonymous and (potential) participants were under no obligation to participate. Moreover, the information sheet also contained a direct link to a list of available support services that could be accessed without a need to complete the survey. Potential participants were able to access this list of support services by clicking an "I would like help now" button. After reading the information sheet, participants were directed to a screening tool that checked whether they were; (1) a New Zealand-based parent of caregiver, (2) aged 18 years or over, and (3) living with children younger than 18 years of age in their household. Participants were asked whether they met these criteria as part of the study's prescreening questions in Qualtrics. Participants who did not meet these criteria, or who did not respond "yes" to the study's consent question,

were directed towards the end of the survey in Qualtrics (and a list of available support services).

Completing the survey took up to 30 minutes and was anonymous. Once participants had started their survey, they were encouraged to finish it, but able to go back to the survey to complete it for up to a week if necessary (i.e. answers would be saved in their internet browser). Participants were taken through the survey sections sequentially from section 1 (with questions on demographics) to section 2 (on the impact of the COVID-19 restrictions), section 3 (on coping strategies), and section 4 (on perceived stress). At the end of Survey 1, participants were asked if they wanted to complete the survey again in four weeks. Participants who answered this question with "yes" were asked to provide their email addresses in a separate survey (e.g. their email addresses were saved separately from the research data). For participants who completed Survey 2, Subject IDs were generated in Qualtrics to protect their privacy and confidentiality. The questions in the first and the second survey were identical, except for the questions on demographics, which were omitted in the second survey.

4. ANALYSES AND RESULTS

Below, the descriptive statistics and analyses and results for Survey 1 (N = 242) will be described first, followed by those for Survey 2 (N = 125). Subsequently, the repeated-measures analyses of the two surveys will be reported. For both surveys, missing data were imputed using expectation-maximization in SPSS (Peng et al., 2006; Schlomer et al., 2010). For all statistical analyses, exact p values will be provided. The current study did not use Bonferroni corrections or any other system for adjusting multiple comparisons (Field, 2018). As such, there is a likelihood that one or more of the statistically significant findings comprise type I errors. The reason for not using Bonferroni corrections is twofold. Firstly, given the exploratory nature of the current study, it was important to reduce type II errors (Rothman, 1990). Secondly, the analyses and results of the current study follow those of previous post-disaster coping research (Bistricky et al., 2019; Casacchia et al., 2013; Dawson & Golijani-Moghaddam, 2020; Garrison & Sasser, 2009; Glass et al., 2009; Madsen & O'Mullan, 2016; Stratta et al., 2014, 2015; Weissman, 2012; Yang et al., 2010; Zacher & Rudolph, 2020; Zhou & Wu, 2018).

4.1 SURVEY 1

Below, the descriptive statistics and analyses and results of Survey 1 (N = 242) will be reported. In Survey 1, participants were asked to report their coping strategies and levels of perceived stress during Alert Levels 4 and 3 in New Zealand.

4.1.1 DESCRIPTIVE STATISTICS

The (continuous) dependent variable in all analyses conducted on the data of Survey 1 constituted PSS-10 score. PSS-10 score ranged from 3 to 36 (M = 17.83 and SD = 7.74). Cronbach's Alpha for the PSS-10 was adequate at .92. Descriptive statistics for the individual items of the PSS-10 can be found in appendix 5.

The independent variables for the current study varied per research question and analysis. For research questions 1, the Personal Circumstances Matrix on income and employment constituted the (continuous) independent variables. Perhaps unsurprisingly, almost all participants in the current study reported that they spent more time at home as usual during

the March 2020 nationwide lockdown in New Zealand. Most participants also reported that they remained in paid employment during the lockdown. For the majority of the participants in Survey 1, at least one person in their household worked from home. Almost 40% of the participants worked in an essential service. Although most parents did not experience any changes in their work hours, nearly half of all participants reported that someone in their bubble had their income reduced during the lockdown. In addition, over 10% of the participants indicated that someone in their household lost paid employment due to the COVID-19 restrictions. Table 15 comprises an overview of the personal circumstances of participants in Survey 1.

Table 15

Frequencies of the independent variables on personal circumstances

	***N* and percentages of participants**			
Number of adults in bubble…	0 adults	1 adult	2 adults	3 adults
…who remained gainfully employed	25 (10.3%)	102 (42.1%)	108 (44.6%)	7 (2.9%)
…who worked in an essential service	152 (62.8%)	65 (26.9%)	22 (9.1%)	3 (1.2%)
…who worked from home	37 (15.3%)	116 (47.9%)	87 (36%)	2 (.8%)
…who studied from home	174 (71.9%)	61 (25.2%)	7 (2.9%)	0
…lost or left paid employment	212 (87.6%)	28 (11.6%)	2 (.8%)	0
…who had work hours reduced	163 (67.4%)	65 (26.9%)	13 (5.4%)	1 (.4%)
…who had income reduced	138 (57%)	83 (34.3%)	19 (7.9%)	2 (.8%)
…who spent more time at home	10 (4.1%)	59 (24.4%)	159 (65.7%)	14 (5.8%)

Research question 2 and 7 examined whether appraisal of the COVID-19 restrictions predicted perceived stress. For these research questions, the (categorical) independent variable comprised the Impact Question in section 2 of the survey (i.e. “how would you describe the impact of the COVID-19 restrictions on your family?”). Participants could choose between three options in their answer to this question: (1) positive, (2) negative, or (3) mixed: both positive and negative. Out of the 242 participants in Survey 1, 66 participants

(27.3%) reported that they had experienced the impact of the COVID-19 restrictions on their family as "mostly positive", 19 participants (7.9%) considered it "mostly negative" and 155 participants (64%) rated the impact of the restrictions as mixed. The remaining 2 participants missed this item (as this question comprised a categorical variable these missing data were not imputed with expectation-maximisation).

The third research question examined whether the effects of the COVID-19 restrictions on New Zealand-based families (as measured with the Effects Matrix) predicted perceived stress (measured with the PSS-10). Cronbach's alpha for this scale was adequate at .86 (after reverse-coding the positively worded items 2, 3, 7, 8, 9, and 10). The descriptive statistics for the independent variables in this analysis are reported in Table 16 below.

Table 16

Descriptive statistics of the independent variables of ''effects of the lockdown"

Item	Range	*M*	*SD*
(1) It has a negative effect on my/our mental wellbeing	0 – 4	2.00	.89
(2) It has a positive effect on my/our mental wellbeing	0 – 4	2.20	.85
(3) It enhances the relationships within our bubble	0 – 4	2.67	.89
(4) It puts a strain on the relationships within our bubble	0 – 4	1.85	.93
(5) We miss face-to-face contact with friends/family outside our bubble	0 – 4	2.96	.91
(6) We miss our usual activities outside the house	1 – 4	2.93	.90
(7) It gives our family the chance to focus on "what really matters"	0 – 4	2.55	.94
(8) We experience less stress from work and/or school	0 – 4	1.92	1.18
(9) It allows our family to slow down	0 – 4	2.74	1.10
(10) We spend more time together as a family	0 – 4	3.17	.93

Note. As participants were asked to rate the above-mentioned items on a 5-point Likert scale, the range in this table refers to the different Likert scale options: 0 never, 1 almost never, 2 sometimes, 3 fairly often, and 4 very often. The positively worded items 2, 3, 7, 8, 9, and 10 were not reverse-coded for Table 17.

For research questions 4 and 6 the coping strategies of the Brief COPE Inventory constituted the independent variables. Cronbach's reliability alpha for the Brief COPE Inventory was adequate at .80. The descriptive statistics of the individual items on the Brief COPE Inventory can be found in appendix 6. As the Brief COPE Inventory measures 14 dimensions of coping across 28 items (2 items per coping dimension) the scores on these 14 dimensions are calculated by summing the scores on the applicable 2 items. The descriptive statistics of the 14 dimensions of coping are displayed in Table 17.

Table 17

Descriptive statistics of the 14 dimensions of coping of the Brief COPE Inventory

Dimension of coping	Range	*M*	*SD*
Self-distraction	2 – 8	4.46	1.53
Active coping	2 – 8	4.95	1.50
Denial	2 – 8	2.46	.84
Substance use	2 – 8	2.80	1.30
Emotional support	2 – 8	4.42	1.46
Behavioural disengagement	2 – 8	2.91	1.35
Venting	2 - 8	3.99	1.31
Instrumental support	2 – 8	3.74	1.33
Positive reframing	2 – 8	5.47	1.55
Self-blame	2 – 8	3.55	1.64
Planning	2 – 8	4.93	1.61
Humour	2 – 8	4.38	1.71
Acceptance	2 – 8	6.62	1.31
Religion	2 – 8	3.01	1.57

The answers to the Extra Coping Questions (which constituted dichotomous categorical variables) were assessed to answer research question 5. The frequencies of the answers to these questions under Survey 1 are displayed in Table 18 below.

Table 18

Frequencies of answers to Extra Coping Questions in Survey 1

Question	Yes	No	N/A
(1) Do you stick to a daily routine/timetable?	166 (68.6%)	76 (31.4%)	
(2) Do you share tasks with your partner or another adult in your bubble?	182 (75.2%)	38 (15.7%)	22 (9.1%)
(3) If you work from home: do you use a designated space or time for your work?	126 (52.1%)	34 (14%)	82 (33.9%)
(4) If you work from home: do you use strategies to separate your work from your family life?	96 (39.7%)	64 (26.4%)	82 (33.9%)
(5) Are you currently homeschooling your child/children?	195 (80.6%)	47 (19.4%)	
(6) If you are homeschooling your child/children: do you use online resources?	187 (77.3%)	11 (4.5%)	42 (17.4%)
(7) Do you use online parenting resources?	81 (33.5%)	160 (66.1%)	
(8) Do you use social media to organize online playdates for your children?	150 (62%)	91 (37.6%)	
(9) Do you engage in physical activity inside using online resources (such as yoga or Kapa Haka)?	140 (57.9%)	102 (42.1%)	
(10) Do you and your kids watch movies, series, or documentaries (on Netflix for example)?	216 (89.3%)	26 (10.7%)	
(11) Do you and your children play videogames?	123 (50.8%)	119 (49.2%)	
(12) Do you and your children use social media to stay in touch with whānau outside your bubble?	219 (90.5%)	23 (9.5%)	
(13) Do you and your children read books together?	204 (84.3%)	37 (15.3%)	
(14) Do you and your children play together?	220 (90.9%)	21 (8.7%)	
(15) Do you engage in physical activities outside?	230 (95%)	11 (4.5%)	
(16) Do you engage in creative activities?	227 (93.8%)	14 (5.8%)	

Note. Item 6 had 2 missing scores (.8%); items 7, 8, 13, 14, 15 and 16 had 1 missing item each (.4%). As the items on this scale constituted nominal variables, these missing scores were not imputed with EM.

4.1.2 ANALYSES AND RESULTS

A multiple linear regression was performed to answer research question 1: what personal circumstances (measured with the Personal Circumstances matrix) predicted perceived stress (measured with the PSS-10)? PSS-10 score was the dependent variable, whereas personal circumstances constituted the independent variables. Appendix 7 contains the plot of standardized predicted values against standardized residuals, a histogram, and the probability plot that were created to check the assumptions of the multiple linear regression. The results of the multiple linear regression showed that only the "number of adults who worked from home" significantly predicted PSS-10 score (p = .025). With every extra adult that worked from home (from 0 to 1, 1 to 2, or 2 to 3), while holding the other predictor variables constant, stress scores on the PSS-10 increased with B = 1.85. As total PSS-10 score could vary from 0 to 40, this is a very minimal increase. Table 19 shows the results of the linear multiple regression on the "number of adults who have worked from home" in relation to perceived stress (PSS-10 score). The results of the linear multiple regression on the other personal circumstances are displayed in appendix 8.

Table 19

Linear model of "number of adults in bubble who have worked from home" as a predictor of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

	B	*SE B*	*B*	*T*	*P*
Constant	14.83	1.64		9.02	<.001
	(11.59, 18.07)				
Number of adults in bubble who have worked from home	**1.85**	**.82**	**.17**	**2.26**	**.025**
	(.23, 3.46)				

Note. R^2=.07; ΔR^2=.04 (p=.021).

Research question 2 examined whether appraisal of the COVID-19 restrictions as either "positive", "negative" or "mixed" (measured with the Appraisal Question) predicted perceived stress (PSS-10). The statistical assumptions of multiple linear regression were

checked through a histogram, a probability plot, and a plot of standardized predicted values against standardized residuals (which can be found in appendix 9). The results show that appraisal significantly predicted PSS-10 score at p <.001 (Table 20). The difference between participants who rated the impact of the COVID-19 restrictions on their family as "positive" versus the participants who rated it as "mixed" was a decrease in mean PSS-10 score of B = -7.29. As PSS-10 score can range from 0 to 40, a decrease of B = -7.29 reflects a substantial decrease in perceived stress. The difference in mean PSS-10 score between participants who rated the impact of the COVID-19 restrictions as "mixed" versus participants who rated it as "mostly negative" was B = 7.97. This result indicates that participants who considered the restrictions "mostly negative" had a mean PSS-10 score that was 7.97 higher than participants who rated it as "mixed".

Table 20

Linear model of appraisal as a predictor of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

	B	*SE B*	*B*	*T*	*P*
Constant	19.19	.52		36.87	<.001
	(18.17, 20.22)				
Mixed versus mostly positive	**-7.29**	**.96**	**-.42**	**-7.62**	**<.001**
	(-9.18, -5.41)				
Mixed versus mostly negative	**7.97**	**1.58**	**.28**	**5.03**	**<.001**
	(4.84, 11.09)				

Note. R^2=.30; ΔR^2=.29 (p= <.001).

Research question 3 examined which effects of the COVID-19 restrictions (as measured with the Effects Matrix) predicted perceived stress (measured with the PSS-10). A multiple linear regression was performed with PSS-10 score as the dependent variable and the items on the Effects Matrix as the independent variables. A plot of standardized predicted values against standardized residuals, as well as a histogram, and a normal probability plot (which checked the assumptions of homoscedasticity, linearity, and normality of residuals) can be found in

appendix 10 Based on the results of the multiple linear regression for research question 3 (Table 21) it follows that items 1, 4, 8, 9 and 10 were significant predictors of perceived stress at $p < .05$ (specific p values are reported in Table 21 below).

Items 1 and 4 both significantly and positively affected PSS-10 score (i.e. higher scores on these items predicted an increase in perceived stress). An increase of 1 on the Likert scale of item 1 ("the COVID-19 restrictions have a negative effect on my/our wellbeing"), while holding the other predictor variables constant, predicted an increase in PSS-10 score of $B = 4.70$ at $p < .001$. As PSS-10 score could range from 0 to 40, an increase of $B = 4.70$ constitutes a substantial difference. In this context, it is interesting to note the frequencies of the answers to item 1: only 7 participants (2.9%) noted that the restrictions "never" had a negative effect on their mental wellbeing, for 59 participants (24.4%) this was "almost never", 118 participants (48.8%) indicated that the restrictions "sometimes" had a negative impact on their mental wellbeing, for 43 participants (17.8%) this was "fairly often" and for 15 participants (6.2%) the answer was "very often". Thus, for 24% of the parents who participated in Survey 1, the lockdown had a negative effect on their mental wellbeing "fairly often" or "very often". For the vast majority of the participants in the current study (72.8%), this negative impact was felt *at least* sometimes.

Item 4 ("the COVID-19 restrictions put a strain on the relationships within our bubble") also significantly and positively predicted PSS-10 score at $p = .003$. An increase of 1 on the Likert scale of this item, while holding the other predictor variables constant, predicted an increase in PSS-10 score of $B = 1.48$.

Items 8 and 9 both significantly and negatively predicted PSS-10 score (i.e. higher scores on these items predicted a reduction in perceived stress). A 1-point increase on the Likert scale of item 8 ("we experience less stress from work/school"), while holding the other predictor variables constant, predicted a decrease in PSS-10 score of $B = -.81$ (a small but significant decrease at $p = .023$). A 1-point increase on item 9 ("it allows our family to slow down"), while holding the other predictor variables constant, also predicted a small but significant decrease in PSS-10 score (of $B = -1.00$ at $p = .014$). Interestingly, an increase of 1 on item 10 ("we spend more time together as a family as a consequence of the COVID-19 restrictions"), while holding the other predictor variables constant, predicted an increase in PSS-10 score (or perceived stress) of $B = .94$ (a small but significant increase at $p = .032$).

Table 21

Linear model of effects of the COVID-19 Restrictions in New Zealand as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE B*	*β*	*T*	*P*
Constant	8.49	2.60		3.27	.001
	(3.37, 13.61)				
(1) Negative effect on mental wellbeing	**4.70**	**.48**	**.54**	**9.70**	**<.001**
	(3.74, 5.65)				
(2) Positive effect on mental wellbeing	.17	.52	.02	.32	.751
	(-.87, 1.20)				
(3) It enhances the relationships within our bubble	-.71	.57	-.08	-1.25	.213
	(-1.83, .41)				
(4) It puts a strain on relationships	**1.48**	**.49**	**.18**	**3.01**	**.003**
	(.51, 2.44)				
(5) We miss face-to-face contact outside bubble	-.17	.42	-.02	-.41	.682
	(-1.01, .66)				
(6) We miss our usual activities outside the house	.00	.45	.00	.01	.993
	(-.88, .89)				
(7) We can focus on "what really matters"	.23	.53	.03	.44	.660
	(-.81, 1.27)				
(8) Less stress from work and/or school	**-.81**	**.35**	**-.12**	**-2.28**	**.023**
	(-1.51, -.11)				
(9) It allows our family to slow down	**-1.00**	**.41**	**-.14**	**-2.47**	**.014**
	(-1.81, -.21)				
(10) We spend more time together as a family	**.94**	**.43**	**.11**	**2.16**	**.032**
	(.08, 1.80)				

Note. $R^2=.59$; $\Delta R^2=.58$ ($p < .001$).

Research question 4 examined which coping strategies (measured with the Brief COPE Inventory) predicted perceived stress (measured with the PSS-10) in New Zealand-based parents. A histogram and normal probability plot showed that the assumption of linearity and normality of residuals were met (appendix 11). The results of the multiple regression showed that seven coping dimensions predicted PSS-10 score at $p < .05$ (see Table 22, which shows the exact p values): self-distraction, behavioural disengagement, venting, self-blame, planning, emotional support, and acceptance.

The coping dimensions that significantly and positively predicted PSS-10 score (i.e. increased levels of perceived stress) included self-distraction, behavioural disengagement, venting, self-blame, and planning. An increase in self-distraction score of 1, while holding the other predictor variables constant, predicted a small increase in PSS-10 score of $B = .42$ (PSS-10 scores range from 0 to 40). An increase of 1 in planning score, while holding the other predictor variables constant, predicted an increase in PSS-10 score of $B = .63$ (at $p = .007$). For venting, an increase of 1 (while holding the other predictor variables constant) predicted an increase in PSS-10 score of $B = .8$ (at $p = .005$). The effect sizes for the use of behavioural disengagement and self-blame were larger. An increase of 1 in behavioural disengagement score, while holding the other predictor variables constant, predicted a $B = 1.56$ increase in PSS-10 score (at $p < .001$). An increase of 1 in self-blame score, while holding the other predictor variables constant, led to an even larger increase in PSS-10 score of $B = 1.94$ (at $p < .001$).

The dimensions that significantly and negatively predicted PSS-10 score (i.e. reduced levels of perceived stress) included acceptance and emotional support. An increase in emotional support score of 1, while holding the other predictor variables constant, predicted a small decrease in PSS-10 score of $B = -.52$ at $p = .031$. An increase of 1 in acceptance score, while holding the other predictor variables constant, predicted a decrease in PSS-10 score of $B = -.53$ (at $p = .041$).

Overall, the use of coping dimensions explained 70% of the variance in PSS-10 score. The multiple linear regression that was conducted on the 29 individual items of the Brief COPE Inventory can be found in appendix 12. Table 22 shows the results of the linear multiple regression on the 14 coping dimensions of the Brief COPE Inventory.

Table 22

Linear model of effects of the 14 Brief COPE Inventory's coping dimensions as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

Dimension of coping	*B*	*SE*	*B*	*T*	*P*
Constant	5.34	2.28		2.35	.020
	(.85, 9.82)				
Self-distraction	**.42**	**.21**	**.08**	**2.03**	**.043**
	(.01, .83)				
Active coping	-.27	.25	-.05	-1.09	.277
	(-.75, .22)				
Denial	.57	.38	.06	1.49	.140
	(-.19, 1.32)				
Substance use	.02	.23	.00	.08	.940
	(-.43, .47)				
Emotional support	**-.52**	**.24**	**-.10**	**-2.17**	**.031**
	(-.99, -.05)				
Behavioural disengagement	**1.56**	**.30**	**.27**	**5.17**	**<.001**
	(.97, 2.16)				
Venting	**.80**	**.28**	**.14**	**2.87**	**.005**
	(.25, 1.35)				
Instrumental support	.36	.29	.06	1.21	.227
	(-.22, .94)				
Positive reframing	-.42	.24	-.08	-1.71	.088
	(-.90, .06)				
Self-blame	**1.94**	**.24**	**.41**	**8.09**	**<.001**
	(1.47, 2.41)				
Planning	**.63**	**.23**	**.13**	**2.72**	**.007**
	(.18, 1.09)				
Humour	-.13	.17	-.03	-.73	.469
	(-.47, .22)				
Acceptance	**-.53**	**.26**	**-.09**	**-2.05**	**.041**
	(-1.04, -.02)				
Religion	.02	.20	.01	.12	.907
	(-.36, .41)				

Note. $R^2=.70$; $\Delta R^2=.68$ ($p < .001$).

Research question 5 examined which other coping strategies (as measured with the Extra Coping Questions) predicted perceived stress (PSS-10 score). The Extra Coping Questions consisted of 16 dichotomous questions on the use of structure, homeschooling, and the use of online as well as offline resources to cope with the impact of the COVID-19 restrictions. Out of all 16 items, only item 4 ("using strategies to separate working at home from family life") significantly predicted perceived stress at $p = .013$. Participants who indicated that they used strategies to separate working at home from their family life had a mean PSS-10 score that was $B = 2.51$ lower than participants who indicated that they did not use such strategies (Table 23). A plot of standardized predicted values against standardized residuals, a histogram, and a normal probability plot for the multiple regression on item 4 of the Extra Coping Questions can be found in appendix 13. The results of the multiple regressions on the other 15 items that were part of the Extra Coping Questions are displayed in appendix 14, 15, and 16.

Table 23

Linear model on the "use of strategies to separate working at home from family life" as a predictor of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE*	*B*	*T*	*P*
Constant	18.82 (17.58, 20.07)	.63		29.71	<.001
Use of strategies to separate work at home from family life vs. not using such strategies	**-2.51 (-4.49, -.53)**	**1.01**	**-.16**	**-2.49**	**.013**

Note. R^2=.03; ΔR^2=.02; p = .013 for Question 4.

4.2 SURVEY 2

Below, the descriptive statistics and analyses and results of Survey 2 (N = 125) will be reported. As previously mentioned, participants were asked to report their coping strategies and levels of perceived stress during Alert Levels 2 and 1 in New Zealand under Survey 2.

4.2.1 DESCRIPTIVE STATISTICS

PSS-10 score ranged from 2.56 to 36 (M = 16.17 and SD = 6.64) under Survey 2. Descriptive statistics for the individual items of the PSS-10 can be found in appendix 17. Table 24 shows frequencies for the personal circumstances questions under Survey 2.

Table 24

Frequencies of the independent variables on personal circumstances

	***N* and percentages of participants**			
Number of adults in bubble…	0 adults	1 adult	2 adults	3 adults
…who remained gainfully employed	10 (8%)	47 (37.6%)	66 (52.8%)	2 (1.6%)
…who worked in an essential service	81 (64.8%)	30 (24%)	14 (11.2%)	0
…who worked from home	21 (16.8%)	66 (52.8%)	37 (29.6%)	1 (.8%)
…who studied from home	99 (79.2%)	20 (16%)	6 (4.8%)	0
…lost or left paid employment	116 (92.8%)	9 (7.2%)	0	0
…who had work hours reduced	100 (80%)	23 (18.4%)	2 (1.6%)	0
…who had income reduced	91 (72.8%)	32 (25.6%)	2 (1.6%)	0
…who spent more time at home	27 (21.6%)	46 (36.8%)	48 (38.4%)	4 (3.2%)

Out of the 125 participants in Survey 2, 51 participants (40.8%) reported that they had experienced the impact of the COVID-19 restrictions on their family as "mostly positive", 7 participants (5.6%) indicated that they considered the COVID-19 restrictions to be "mostly negative" and 66 participants (52.8%) rated the impact of the restrictions as "mixed". The remaining participant (N = 1) missed this item (as this question comprised a categorical variable, these missing data were not imputed with expectation-maximisation). Descriptive statistics for the "effects of the lockdown" under Survey 2 are displayed in Table 25.

Table 25

Descriptive statistics of the independent variables of "effects of the lockdown"

Item	Range	*M*	*SD*
(1) It has a negative effect on my/our mental wellbeing	0 – 4	1.70	.86
(2) It has a positive effect on my/our mental wellbeing	0 – 4	2.24	.87
(3) It enhances the relationships within our bubble	0 – 4	2.73	.84
(4) It puts a strain on the relationships within our bubble	0 – 4	1.66	.92
(5) We miss face-to-face contact with friends/family outside our bubble	0 – 4	2.36	.93
(6) We miss our usual activities outside the house	0 – 4	2.42	.87
(7) It gives our family the chance to focus on "what really matters"	1 – 4	2.72	.78
(8) We experience less stress from work and/or school	0 – 4	2.27	1.11
(9) It allows our family to slow down	0 – 4	2.87	1.06
(10) We spend more time together as a family	1 – 4	3.13	.79

Note. Items 2, 3, 7, 8, 9, and 10 were not reverse-coded.

Descriptive statistics for the (29) items of the Brief COPE Inventory under Survey 2 can be found in appendix 18. Table 26 shows the descriptive statistics for the 14 coping dimensions of the Brief COPE Inventory.

Table 26

Descriptive statistics of the 14 dimensions of coping of the Brief COPE Inventory

Dimension of coping	Range	*M*	*SD*
Self-distraction	2 – 8	3.97	1.48
Active coping	2 – 8	4.56	1.56
Denial	2 – 5	2.33	.66
Substance use	2 – 6	2.46	.87
Emotional support	2 – 8	4.41	1.44
Behavioural disengagement	2 – 8	2.53	1.10
Venting	2 - 8	3.74	1.22
Instrumental support	2 – 7	3.71	1.32
Positive reframing	2 – 8	5.35	1.61
Self-blame	2 – 8	3.34	1.54
Planning	2 – 8	4.65	1.69
Humour	2 – 8	4.23	1.60
Acceptance	2 – 8	6.38	1.45
Religion	2 – 8	3.06	1.62

Table 27 below displays the frequencies for the Extra Coping Questions under Survey 2.

Table 27

Frequencies of answers to Extra Coping Questions in Survey 2

Question	Yes	No	N/A
(1) Do you stick to a daily routine/timetable?	87 (69.6%)	38 (30.4%)	
(2) Do you share tasks with your partner or another adult in your bubble?	97 (77.6%)	20 (16%)	8 (6.4%)
(3) If you work from home: do you use a designated space or time for your work?	126 (52.1%)	34 (14%)	82 (33.9%)
(4) If you work from home: do you use strategies to separate your work from your family life?	50 (40%)	25 (20%)	50 (40%)
(5) Are you currently homeschooling your child/children?	9 (7.2%)	116 (92.8%)	
(6) If you are homeschooling your child/children: do you use online resources?	9 (7.2%)	4 (3.2%)	44 (35.2%)
(7) Do you use online parenting resources?	52 (51.6%)	68 (54.4%)	
(8) Do you use social media to organize online playdates for your children?	59 (47.2%)	63 (50.4%)	
(9) Do you engage in physical activity inside using online resources (such as yoga or Kapa Haka)?	60 (48%)	65 (52%)	
(10) Do you and your kids watch movies, series, or documentaries (on Netflix for example)?	102 (81.6%)	23 (18.4%)	
(11) Do you and your children play videogames?	49 (39.2%)	76 (60.8%)	
(12) Do you and your children use social media to stay in touch with whānau outside your bubble?	105 (84%)	20 (16%)	
(13) Do you and your children read books together?	97 (77.6%)	28 (22.4%)	
(14) Do you and your children play together?	106 (84.8%)	19 (15.2%)	
(15) Do you engage in physical activities outside?	114 (91.2%)	11 (8.8%)	
(16) Do you engage in creative activities?	109 (97.2%)	16 (12.8%)	

Note. Item 6 had 68 missing scores (54.4%); item 7 had 5 items missing (4%), and item 8 had 3 items missing (2.4%). As the items on this scale constituted nominal variables, these missing scores were not imputed with EM.

4.2.2 ANALYSES AND RESULTS

For Survey 2, three multiple regression analyses were conducted to answer the research questions of the current study. For all three analyses, PSS-10 score constituted the dependent variable, whereas the independent variables comprised (respectively) the items of the Effects Matrix, the coping dimensions of the Brief COPE Inventory, and the Extra Coping Questions.

Only one item on the Effects Matrix significantly predicted PSS-10 score under Survey 2 (at p = .001); item 1 ("it has a negative effect on my/our mental wellbeing"). A plot of standardized predicted values against standardized residuals, a histogram, and a normal probability plot for this multiple regression can be found in appendix 19. Appendix 20 contains the results of the multiple regression on the other items of the Effects Matrix. As displayed in Table 28, each 1 unit increase on the Likert scale of this variable ("it has a negative effect on my/our mental wellbeing"), while holding the other predictor variables constant, predicted an increase in PSS-10 score of B = 2.88. In this context, it is important to note that out of all 125 participants in Survey 2, only 7 participants (5.6%) indicated that the COVID-19 restrictions "never" negatively affected their mental wellbeing, for 46 participants (36.8%) this was "almost never", for 54 participants (43.2%) "sometimes", for 14 participants (11.2%) "fairly often", and for 4 participants (3.2%) "very often". Thus, for the majority of the participants in Survey 2 (57.6%), the COVID-19 restrictions had a negative effect on their mental health *at least* sometimes, whereas for 14.4% this was "fairly often" to "very often".

Table 28

Linear model of the "effects of the COVID-19 Restrictions in New Zealand" as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE B*	*B*	*T*	*P*
Constant	16.73	3.60		4.65	<.001
	(9.60, 23.87)				
(1) Negative effect on mental wellbeing	**2.88**	**.86**	**.38**	**3.34**	**.001**
	(1.17, 4.58)				

Note. R^2=.22; ΔR^2=.15 (p=.001).

The multiple regression on the 14 Brief COPE coping dimensions under Survey 2 showed that three coping dimensions significantly predicted PSS-10 score: behavioural disengagement, self-blame, and planning (see Table 29). These three items all predicted an increase in perceived stress. A one-unit change in behavioural disengagement score, while holding the other predictor variables constant, predicted a $B = 1.21$ increase in PSS-10 score ($p = .015$). Self-blame predicted an increase in PSS-10 score of $B = 1.76$ ($p < .001$) and planning predicted an increase in perceived stress of $B = .86$ at $p = .030$ (while holding the other predictor variables constant). A plot of standardized predicted values against standardized residuals, a histogram, and a normal probability plot for this multiple regression can be found in appendix 21. The results of the multiple regression on the individual Brief COPE Inventory items can be found in appendix 22.

None of the Extra Coping Questions predicted perceived stress under Survey 2. The results of this multiple regression can be found in appendix 23, 24, and 25.

Table 29

Linear model of the 14 Brief COPE Inventory's coping dimensions as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

Dimension of coping	*B*	*SE*	*B*	*T*	*P*
Constant	8.76	3.24		2.70	.008
	(2.33, 15.19)				
Self-distraction	.24	.38	.05	.62	.535
	(-.52, .10)				
Active coping	-.08	.44	-.02	-.18	.859
	(-.95, .79)				
Denial	.91	.76	.09	1.20	.234
	(-.60, 2.41)				
Substance use	-.77	.55	-.10	-1.39	.167
	(-1.86, .33)				
Emotional support	-.19	.45	-.04	-.41	.684
	(-1.08, .71)				
Behavioural disengagement	**1.21**	**.49**	**.20**	**2.46**	**.015**
	(.24, 2.18)				
Venting	-.48	.55	-.09	-.88	.381
	(-1.56, .60)				
Instrumental support	.82	.52	.17	1.60	.112
	(-.20, 1.85)				
Positive reframing	-.04	.35	-.01	-.10	.918
	(-.72, .65)				
Self-blame	**1.76**	**.38**	**.41**	**4.64**	**<.001**
	(1.01, 2.52)				
Planning	**.86**	**.39**	**.22**	**2.20**	**.030**
	(.09, 1.64)				
Humour	-.48	.30	-.12	-1.59	.115
	(-1.09, .12)				
Acceptance	-.53	.35	-.12	-1.51	.133
	(-1.22, .16)				
Religion	-.36	.30	-.09	-1.20	.231
	(-.94, .23)				

Note. R^2=.49; ΔR^2=.43 ($p < .001$).

4.3 REPEATED-MEASURE ANALYSES SURVEY 1 AND SURVEY 2

To answer research question 6, paired samples *t*-tests were conducted to compare PSS-10 scores and coping strategies under Survey 1 and 2. A third dataset was created to conduct these paired samples *t*-tests. Only the data of the 125 participants who completed both Survey 1 and Survey 2 were part of this third dataset. Responses were matched based on Subject IDs that were created in Qualtrics. On average, participants had a lower PSS-10 score under Survey 2 (M = 16.28, SE = 6.55) compared to Survey 1 (M = 17.83, SE = 7.38). This difference, -1.56, BCa 95% CI [-2.72, -.39], was significant, t (124) = -2.65, p = .009 (2-tailed), and represented an effect of d = .24. The results of the paired samples *t*-test for the 14 coping dimensions of the Brief COPE Inventory are displayed in Table 30.

Table 30

Paired samples t-test for the 14 Brief COPE Inventory coping dimensions (Survey 1 and 2)

Coping strategy	*M* Survey 1	*M* Survey 2	*M* Difference	*t*	*df*	*P*	*d*
Self-distraction	**4.46**	**3.97**	**-.49 (-.82, -.15)**	**-2.88**	**124**	**.005**	**.33**
Active coping	**5.04**	**4.56**	**-.48 (-.77, -.20)**	**-3.34**	**124**	**.001**	**.31**
Acceptance	**6.75**	**6.38**	**-.37 (-.64, -.10)**	**-2.70**	**124**	**.008**	**.25**
Substance use	**2.64**	**2.46**	**-.18 (-.36, -.01)**	**-2.05**	**124**	**.042**	**.21**
Emotional support	**4.74**	**4.41**	**-.33 (-.55, -.11)**	**-2.92**	**124**	**.004**	**.23**
Venting	**4.02**	**3.74**	**-.28 (-.50, -.06)**	**-2.51**	**124**	**.013**	**.23**
Instrumental support	**3.95**	**3.71**	**-.24 (-.43, -.05)**	**-2.50**	**124**	**.014**	**.18**
Positive reframing	**5.78**	**5.35**	**-.42 (-.68, -.17)**	**-3.28**	**124**	**.001**	**.26**
Self-blame	**3.62**	**3.34**	**-.29 (-.53, -.05)**	**-2.40**	**124**	**.018**	**.19**
Planning	**5.22**	**4.65**	**-.58 (-.87, -.28)**	**-3.90**	**124**	**<.001**	**.34**
Behavioural disengagement	**2.93**	**2.53**	**-.40 (-.60, -.20)**	**-3.94**	**124**	**<.001**	**.36**
Humour	4.40	4.23	-.17 (-.42, .08)	-1.34	124	.183	.11
Denial	2.48	2.33	-.15 (-.32, .01)	-1.88	124	.063	.23
Religion	3.13	3.06	-.06 (-.22, .09)	-.82	124	.411	.04

Note. All p values are two-tailed.

Based on the results displayed in Table 30, it follows that mean scores for all 14 coping dimensions (of the Brief COPE Inventory) were lower under Survey 2 compared to Survey 1. This means that the participants in this study reported using these coping strategies less over time (i.e. between Survey 1 and Survey 2). This reduction in mean score was significant at $p < .05$ for the following 11 coping strategies: self-distraction, active coping, acceptance, substance use, emotional support, venting, instrumental support, positive reframing, self-blame, planning, and behavioural disengagement. However, for all of the before-mentioned 11 coping dimensions, the effect size of the reduction in mean score was small (see Table 30).

5 DISCUSSION

Below, the results of the current study will be discussed. Firstly, the six research questions in this study will be answered under section 5.1. Subsequently, the main findings of this study will be discussed in relation to the existing literature on stress and coping under section 5.2.

5.1 ANSWERS TO RESEARCH QUESTIONS

5.1.1 RESEARCH QUESTION 1

What personal circumstances predicted perceived stress (PSS-10) in New Zealand-based parents under Survey 1? Out of the personal circumstances that were examined to answer the first research question, only the "number of adults who worked from home" significantly predicted PSS-10 score at $p = .025$. The results of the multiple regression showed that perceived stress increased with every extra adult that worked from home. The increase in perceived stress score was small though (at $B = 1.85$ on a total PSS-10 score that could vary from 0 to 40).

5.1.2 RESEARCH QUESTION 2

Did appraisal of the COVID-19 restrictions as "positive", "negative" or "mixed" predict perceived stress (PSS-10) in New Zealand-based parents under Survey 1? The results of the multiple regression that was performed to answer research question 2 showed that appraisal significantly predicted PSS-10 score at $p < .001$. Participants who rated the impact of the COVID-19 restrictions on their family as "positive" had a significantly lower PSS-10 score than participants who rated the impact of the lockdown as "mixed" ($B = -7.29$ on a total PSS-10 score that varied from 0 to 40). The predicted PSS-10 score for participants who appraised the impact of the lockdown as "mostly negative" was significantly higher than for participants who rated it as "mixed" ($B = 7.97$). It is interesting to note here that most participants in Survey 1 appraised the impact of the COVID-19 restrictions as "mixed" ($N = 155$ or 64%), followed by 66 participants (27.3%) who rated it as "mostly positive", and only 19 participants (7.9%) who rated it as "mostly negative".

5.1.3 RESEARCH QUESTION 3

What effects of the COVID-19 restrictions predicted perceived stress (PSS-10) in New Zealand-based parents under Survey 1 and Survey 2? Under both surveys, participants were asked to rate a set of potential effects the COVID-19 restrictions may have had on their families. The following five effects significantly predicted PSS-10 score at $p < .05$ under Survey 1: (1) "it has a negative effect on my/our mental wellbeing", (2) "it puts a strain on relationships within our bubble", (3) "we spend more time together as a family", (4) "we experience less stress from work and/or school", and (5) "it allows our family to slow down".

Three of the above-mentioned effects predicted a statistically significant increase in perceived stress at $p < .05$. These three effects included: (1) "it has a negative effect on my/our mental wellbeing" ($p < .001$, $B = 4.70$), (2) "it puts a strain on the relationships within our bubble" ($p = .003$, $B = 1.48$), and (3) "we spend more time at home with our family" ($p = .032$, $B = .94$). The two remaining effects predicted a statistically significant reduction in perceived stress: (4) "we experience less stress from work and/or school" ($p = .023$, $B = -.81$), and (5) "it allows our family to slow down" ($p = .014$, $B = -1.00$). These results indicate that parents who reported that their mental health was negatively affected by the COVID-19 restrictions in New Zealand, experienced a significant increase in perceived stress. In this context, it is important to note that for the vast majority of participants in the current study (72.8%) the lockdown negatively affected their mental wellbeing *at least* sometimes. For 24% of the participants in Survey 1, this was "fairly often" to "very often".

Under Survey 2, the only effect that significantly predicted perceived stress (at $p = .001$) constituted "it has a negative effect on my/our mental wellbeing". As under Survey 1, higher scores on this item predicted an increase in perceived stress under Survey 2 ($B = 2.88$). For 14.4% of the participants in Survey 2, the COVID-19 restrictions (still) negatively affected their mental health "fairly often" to "very often". This result shows that the mental health of a substantial number of participants in the current study was not only negatively impacted during Survey 1 (which covered the Level 4 and 3 lockdown) but also when New Zealand moved back to Alert Level 1 under Survey 2.

5.1.4 RESEARCH QUESTION 4

Which coping strategies (measured with the Brief COPE Inventory) predicted perceived stress in New Zealand-based parents under Survey 1 and Survey 2? The coping strategies that predicted a statistically significant increase in perceived stress under Survey 1 constituted self-distraction (p = .043, B = .42), behavioural disengagement (p <.001, B = 1.56), venting (p = .005, B = .80), self-blame (p <.001, B = 1.94), and planning (p = .007, B = .63). The only two coping strategies that predicted a statistically significant reduction in perceived stress under Survey 1 comprised emotional support (p = .031, B = -.52) and acceptance (p = .041, B = -.53). Under Survey 2, only three coping strategies were statistically significant predictors of perceived stress: planning (p = .030, B = .86), self-blame (p <.001, B = 1.76), and behavioural disengagement (p = .015, B = 1.21). All three of these coping strategies predicted an increase in perceived stress under Survey 2.

5.1.5 RESEARCH QUESTION 5

What coping strategies (measured with the Extra Coping Questions) predicted perceived stress in New Zealand-based parents under Survey 1 and 2? The only coping strategy (measured with the Extra Coping Questions) that constituted a significant predictor of perceived stress at $p < .05$ was "the use of strategies to separate working at home from family life" under Survey 1 (p = .013, B = -2.51). This was no longer the case under Survey 2. Interestingly, the use of a "designated space or time to separate working at home from family life" did not predict perceived stress score at $p < .05$. None of the other online or offline coping strategies (including the use of structure) constituted a significant predictor of perceived stress in the current study (under either Survey 1 or Survey 2).

5.1.6 RESEARCH QUESTION 6

How did the effect of coping strategies on perceived stress change over time in New Zealand-based parents? There was a significant reduction in perceived stress between Survey 1 and Survey 2 at p = .009 (Cohen's d = .24). In addition, there was a significant reduction (at $p < .05$) in the use of the following coping strategies under Survey 2 compared to Survey 1: self-blame (d = .19), behavioural disengagement (d = .36), self-distraction (d = .33), venting (d = .23), substance use (d = .21), active coping (d = .31), planning (d = .34),

positive reframing (d = .26), acceptance (d = .25), instrumental support (d = .18), and emotional support (d = .23).

5.2 DISCUSSION OF MAIN FINDINGS

Below, the main findings of the current study will be discussed.

5.2.1 WORKING FROM HOME WAS STRESSFUL FOR PARENTS

According to the results of the current study, working from home was stressful for the parents who participated in Survey 1. An increase in the number of adults who worked from home (from 0 to 1, 1 to 2, or 2 to 3) predicted an increase in perceived stress (at p = .025 and B = 1.85). This result is in line with findings from another survey that was conducted by Victoria University of Wellington's Roy McKenzie Centre for the Study of Families and Children and Institute for Governance and Policy Studies (Prickett et al., 2020a). A total of 2,002 New Zealand-based parents participated in this study during the Level 4 lockdown of March and April 2020. According to the authors of this study, Prickett et al. (2020a), both working mothers and fathers experienced an increase in family demands during the lockdown in New Zealand (Prickett et al., 2020a). For 49% of working mothers and 42% of working fathers, this increase in family demands resulted in work-family conflict (Prickett et al., 2020a). Work-family conflict was associated with more negative affect including stress (Prickett et al., 2020a). This was especially true for working mothers of young and primary school-aged children (Prickett et al., 2020a).

Even though mental health professionals and government agencies actively encouraged parents to use a daily routine to juggle parenting with working from home during lockdown (Clendon, 2020; Korb, 2020, 2020; Ministry of Education New Zealand, 2020; Young, 2020), the current study was unable to find any statistically significant associations between the use of structure and perceived stress. The only coping strategy that did predict a reduction in perceived stress for working parents in the current study constituted "the use of strategies to separate working at home from family life". Not only did the use of these strategies predict a statistically significant reduction in perceived stress at p = .013, but this reduction was also substantial at B = -2.51 (compared to participants who did not use such strategies).

Unfortunately, it is unclear what exactly these strategies comprised. The results of the current study indicate that the use of a "designated space or time to separate work at home from family life" did not have a statistically significant effect on perceived stress. This may not be surprising, as being confined to home isolation with the entire family may have left parents little time to work at all. Moreover, many parents may not have a separate office space in their home to work from. Unfortunately, the current study is unable to answer the question of what strategies parents *did* use to effectively reduce the stress associated with juggling working at home with childcare. More research is needed – perhaps from an industrial and organizational psychology perspective – to answer this question.

5.2.2 APPRAISAL PREDICTED PERCEIVED STRESS

The results of the current study show that the way in which parents appraised the lockdown (as "negative", "mixed", or "positive") predicted perceived stress (under Survey 1). Not only did appraisal predict perceived stress at $p < .001$, but it also had a large effect on the level of perceived stress that the participants reported ($B = -7.29$ for "positive" versus "mixed" and $B = 7.97$ for "negative" versus "mixed"). This finding is in line with Lazarus' (1984) theory of stress, appraisal, and coping. More recent research on the association between appraisal and emotion based on Lazarus' (1984) model of coping has reached similar conclusions (Scherer & Moors, 2019). According to Scherer and Moors (2019), a large body of research supports the idea that positive and negative appraisals lead to (respectively) approach and avoidance.

A recent study by Zacher and Rudolph (2020) looked at the association between coping and subjective wellbeing in relation to the COVID-19 pandemic in a German sample of 979 participants. Zacher and Rudolph (2020) administered both the Brief COPE Inventory and a 4-item measure of stress appraisal at four different points in time. Their results showed that participants who appraised the impact of COVID-19 as "threatening" or "uncontrollable" experienced lower levels of subjective wellbeing during the early stages of the pandemic (Zacher & Rudolph, 2020). Zacher and Rudolph (2020) concluded that psychological practitioners should address appraisal in their work with clients whose subjective wellbeing has been impacted by the COVID-19 pandemic.

> (…) they could attempt to enhance their clients' general capability to use functional stress appraisals, as participants in the current study showed higher general levels of

> subjective wellbeing when they appraised the crisis as less threatening, less central, and more challenging and controllable. (p. 11)

Even though the current study assessed appraisal as either "positive", "negative", or "mixed" (rather than in terms of threat and controllability) Zacher and Rudolph's (2020) results are still largely in line with the findings of this study. Whereas Zacher and Rudolph (2020) found that participants who appraised the COVID-19 pandemic as "threatening" rather than "challenging" reported lower levels of subjective wellbeing, the current study found that participants who appraised the pandemic as "mostly negative" rather than "positive" experienced higher levels of perceived stress. Consequently, health practitioners in New Zealand might also want to focus on appraisal in their work with clients whose mental health has been negatively affected by the current pandemic.

In this regard, it is important to reiterate that most participants in the current study appraised the impact of the COVID-19 restrictions as "mixed" (N = 155 or 64% in Survey 1). Only 19 participants in Survey 1 (7.9%) rated the lockdown as "mostly negative", versus a much higher number of participants (N = 66 or 27.3%) who rated it as "mostly positive" under the same Survey.

5.2.3 PARTICIPANTS WHO INDICATED THAT THE COVID-19 RESTRICTIONS NEGATIVELY IMPACTED THEIR MENTAL WELLBEING AND RELATIONSHIPS EXPERIENCED AN INCREASE IN PERCEIVED STRESS

For 24% of the participants in Survey 1, the lockdown negatively affected their mental wellbeing "fairly often" to "very often". A total of 72.8% of the participants in Survey 1 indicated that the lockdown negatively impacted their mental health *at least* "sometimes". These participants experienced a significant increase in perceived stress at $B = 4.70$ and $p < .001$. Scores on the "strain on relationships" item led to an increase in perceived stress of $B = 1.48$ under Survey 1 (at $p = .003$). As such, participants who indicated that the COVID-19 restrictions "very often" negatively impacted on their mental wellbeing had a perceived stress score that was on average 18.8 points higher (4 Likert scale options x $B = 4.70$) than the participants for whom the restrictions "never" negatively affected their mental health. As previously mentioned, total PSS-10 scores could vary from 0 to 40. Consequently, this finding indicates how stressful the lockdown must have been for those parents who indicated

that it had a negative impact on their mental wellbeing “fairly often” or “very often” (24% of the sample in Survey 1).

The notion that the COVID-19 restrictions negatively impacted the mental health and wellbeing of some people is not new. According to Shakespeare-Finch et al. (2020), findings from risk modeling and population surveillance in Australia show an increased burden of psychological distress, morbidity, and suicide risk as a consequence of the current pandemic. Dawson and Golijani-Moghaddam (2020) found high levels of psychological distress in their United Kingdom (UK) based study on coping, mental health, and wellbeing in relation to the COVID-19 pandemic (N = 555). According to O’Conner et al. (2020), rates of suicidal ideation among adults have increased over time in the UK since the first lockdown. This conclusion was based on a longitudinal study with a sample of 3,077 participants (O’Connor et al., 2020). A study by Wu et al. (2020) indicated that rates of PTSD in the mandatory quarantine zone of Wuhan were so high (compared to the non-quarantine zone of Shanghai) that the authors concluded that urgent psychological intervention was required. According to Lei and Klopack (2020), the trauma associated with COVID-19 might lead to long-term health problems.

A recent study by Sibley et al. (2020) found that New Zealanders also experienced higher levels of psychological distress in relation to the lockdown of March and April 2020. Sibley et al. (2020) compared the mental health of a matched sample of 1,003 adults before and during the first 18 days of lockdown. The Kessler-6 was used to measure psychological distress, rumination, and subjective fatigue (Sibley et al., 2020). According to the results of this study, the participants in the post lockdown group reported a small increase in psychological distress compared to the participants in the pre lockdown group (Sibley et al., 2020).

The current study did not look at rates of psychological distress but did find that the participants whose mental health was negatively affected by the lockdown experienced higher levels of perceived stress. According to Esterwood and Saeed (2020), a heightened stress response to the current COVID-19 pandemic is likely to manifest itself in three ways:

> (1) development of a new episode of a disorder in those with a predisposition to a major psychiatric disorder or an acute exacerbation in those who already have such a disorder, (2) development of trauma or stressor-related disorder, such as acute stress disorder, Post Traumatic Stress Disorder (PTSD), or adjustment disorders, and (3)

> development of a symptomatic stress response that does not meet the diagnostic criteria of a psychiatric disorder. (p. 1121)

Esterwood and Saeed (2020) based this conclusion on a review of the existing literature on past epidemics (including SARS, Ebola, middle east respiratory syndrome or MERS and Anthrax). Their review of past research showed that pandemics can have a long term impact on mental health (Esterwood & Saeed, 2020). Esterwood and Saeed (2020) concluded that it is important to identify the people in need of mental health services early and offer telehealth appointments or online resources where possible.

The current study found that the participants who indicated that the COVID-19 restrictions in New Zealand had negative impacted their mental wellbeing, still reported higher levels of perceived stress when New Zealand was back at Alert Level 1 under Survey 2 (B = 2.88 at p = .001). A total of 14.4% of the participants in Survey 2 indicated that the COVID-19 restrictions still negatively impacted their mental health "fairly often" to "very often". This finding seems to be in line with Esterwood and Saeed's (2020) conclusion that pandemics can have a longer-term impact on psychological distress. Other studies seem to indicate that the COVID-19 pandemic can be especially threatening to the wellbeing of families due to a combination of changes to the normal routine, confinement-related stress, and increased family demands (Prickett et al., 2020a; Prime et al., 2020) As such, identifying parents in need of mental health services and offering these services without delay will remain important in New Zealand now and in the future.

5.2.4 PARTICIPANTS WHO INDICATED THAT THE LOCKDOWN GAVE THEM A CHANCE TO SLOW DOWN AND EXPERIENCE LESS STRESS FROM WORK AND SCHOOL ALSO REPORTED LOWER LEVELS OF PERCEIVED STRESS

Whereas the previous section may have raised the impression that the lockdown has had an overwhelmingly negative effect on the wellbeing of New Zealanders, the current study has found positives as well. Several participants indicated that the lockdown gave them a chance to slow down and experience less stress from work and/or school. Both of these positive effects significantly predicted a decrease in perceived stress (at $p < .05$). Whereas scores on the item "we experience less stress from work and/or school" predicted a decrease in perceived stress of B = -.81 (at p = .023), the other item ("it allows our family to slow down") predicted a decrease in PSS-10 score of B = -1.00 (at p = .014).

Interestingly, Sibley et al. (2020) reached a similar conclusion. As discussed previously, Sibley et al. (2020) used the Kessler-6 to compare levels of psychological distress, rumination, and subjective fatigue in a sample of 1,003 adults before and during the Level 4 lockdown in New Zealand of March and April 2020. Whereas Sibley et al. (2020) found that New Zealanders experienced higher levels of psychological distress during the lockdown, they also found that New Zealanders experienced a greater sense of community and slightly lower levels of fatigue. These results indicate that for some New Zealanders, the lockdown provided an opportunity to rest and slow down.

A similar finding was reported by British researchers who conducted a qualitative study on the impact of the lockdown on families in the UK (Clayton et al., 2020). Clayton et al. (2020) concluded that for most of the 60 parents who participated in their study, the lockdown had been a positive experience. According to Clayton et al. (2020):

> Indeed, some families thrived and prospered by enjoying more family time together as work demands decreased. For those families who appeared less resilient, there were usually additional pressures for these households such as support needs, or significant work demands placed upon the parents. For families that appeared more resilient, their pre-lockdown lifestyles and routines were more flexible in terms of parental work demands and they were able to adapt. (p. 6)

How New Zealand-based families who enjoyed the lockdown might have differed from families for whom the lockdown was a negative experience, is not completely clear. However, the results of the current study as well as the survey by Prickett et al. (2020a) suggest that this could be related to conflicting demands that were reported by families in which at least one adult worked from home. Pre-existing (mental) health conditions may also have played a role. For these families, the lockdown may have meant more stress from work, higher demands, and less time to slow down.

5.2.5 PERCEIVED STRESS DECREASED BETWEEN SURVEY 1 AND 2

The finding that there was a significant decrease in perceived stress between Survey 1 and 2 is perhaps unsurprising. Survey 1 covered Alert Levels 4 and 3 and was administered when New Zealand was still under a country-wide Level 3 lockdown. When Survey 2 was administered, New Zealand was back to “normal life” under Alert Level 1. The 125 New

Zealand-based parents who completed both Survey 1 and 2 reported significantly lower levels of perceived stress under Survey 2 compared to Survey 1 (p = .009). The effect size of this difference was small though at d = .24.

5.2.6 SELF-DISTRACTION, BEHAVIOURAL DISENGAGEMENT, SELF-BLAME, VENTING AND PLANNING PREDICTED AN INCREASE IN PERCEIVED STRESS

One of the main findings of the current study is that self-distraction, behavioural disengagement, self-blame, venting, and planning significantly predicted an increase in perceived stress in New Zealand-based parents both during and in the direct aftermath of the COVID-19 restrictions in this country. Under Survey 1, self-blame predicted the largest increase in perceived stress (p <.001, B = 1.94), followed by behavioural disengagement (p <.001, B = 1.56), venting (p = .005, B = .80), planning (p = .007, B = .63), and self-distraction (p = .043, B = .42). Under Survey 2, coping strategy of self-blame still predicted perceived stress (p < .001, B = 1.76), as did behavioural disengagement (p = .015, B = 1.21), and planning (p = .030, B = .86).

This finding is in line with previous research on coping with natural disasters (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). In these studies, self-blame, behavioural disengagement, venting, and self-distraction constitute avoidant or emotion-focused coping strategies (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). These coping strategies have been found to adversely affect psychological wellbeing (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). As such, the results from the current study support the theory that avoidant coping strategies increase stress and reduce psychological wellbeing during and/or in the direct aftermath of a disaster (including a pandemic such as COVID-19).

Planning, on the other hand, is considered a problem-focused coping strategy in post-disaster coping research using the Brief COPE Inventory (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). Problem-focused coping strategies such as planning are generally considered adaptive in coping research (Lazarus, 1993). However, this seems not to be the case in the context of a natural disaster (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). The findings of previous post-disaster coping research indicate that problem-focused coping strategies increase psychological stress in the aftermath of a natural disaster (Bistricky et al., 2019; Glass et al., 2009; Stratta et al.,

2014, 2015; Yang et al., 2010). As such, planning may be an adaptive coping strategy when a problem can be solved but seems to be ineffective when the stressor is outside our influence (Bistricky et al., 2019; Glass et al., 2009; Stratta et al., 2014, 2015; Yang et al., 2010). Both Glass et al. (2009) and Yang et al. (2010) argued that it is the uncontrollability of natural disasters that deems problem-solving coping strategies ineffective. The current study reached the same conclusion. Thus, it supports the theory based on previous post-disaster research that problem-focused coping strategies are ineffective in the context of natural disasters (including a pandemic).

Perhaps unsurprisingly, few studies have examined stress and coping in relation to the current COVID-19 pandemic. The study by Zacher and Rudolph (2020) that was introduced earlier is an example of a study that has examined the association between coping and subjective wellbeing in relation to COVID-19 in a German sample. Just like the current study, Zacher and Rudolph (2020) used the Brief COPE Inventory to assess coping strategies. Their results showed that both self-blame and denial were associated with an increase in negative affect (Zacher & Rudolph, 2020). Even though negative affect is different from perceived stress, these findings seem to be in line with the results of the current study. Zacher and Rudolph (2020) found that avoidant coping strategies (self-blame and denial) had a negative impact on psychological wellbeing during COVID-19 restrictions in Germany, whereas the current study concluded that self-blame and denial increased perceived stress in a sample of parents based in New Zealand.

Another recent study by Dawson and Golijani- Moghaddam (2020) reached a similar conclusion. Dawson and Golijani- Moghaddam (2020) examined associations between coping strategies and different forms of psychological distress in a UK-based sample of 555 participants. The authors used the Brief COPE Inventory to assessed coping strategies and measured psychological distress with the Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS), the Patient Health Questionnaire-9 (PHQ-9), and the Generalised Anxiety Disorder Scale-7 (GAD-7; Dawson & Golijani-Moghaddam, 2020). According to Dawson and Golijani- Moghaddam (2020), avoidant coping (self-distraction, denial, substance use, behavioural disengagement, venting, and self-blaming) was positively associated with all types of psychological distress (including symptoms of depression and anxiety). Based on the above, the results of the current study support the developing theory that avoidant coping strategies are maladaptive in the context of a pandemic.

Contrary to their expectation, Zacher and Rudolph (2020) also identified a problem-focused coping strategy that was associated with lower levels of life satisfaction: planning. To make sense of this unexpected finding, the researchers hypothesized that "high levels of insecurity associated with the pandemic may have turned future planning into a dissatisfying experience" (Zacher & Rudolph, 2020, p. 11). The current study reached a similar conclusion and found that planning significantly predicted higher levels of perceived stress (at $p < .05$ and $B = .63$). As such, planning may also constitute a coping strategy that is ineffective at improving wellbeing in the face of a pandemic.

5.2.7 ACCEPTANCE AND EMOTIONAL SUPPORT PREDICTED A REDUCTION IN PERCEIVED STRESS

Another important finding of the current study is that emotional support and acceptance predicted a reduction in perceived stress ($B = -.52$, $p = .031$ for emotional support and $B = -.53$, $p = .041$ for acceptance). Several previous post-disaster coping studies have identified acceptance as an adaptive coping strategy in the aftermath of a natural disaster (Casacchia et al., 2013; Garrison & Sasser, 2009; Madsen & O'Mullan, 2016; Weissman, 2012; Zhou & Wu, 2018). According to Casacchia et al. (2013), the use of acceptance appeared to reduce the likelihood of being diagnosed with acute stress disorder (ASD) in a sample of 122 Italians who presented to the General Hospital Psychiatric Unit at the San Salvatore Hospital after the 2009 earthquake in L'Aquila. Madsen and O'Mullan (2016) concluded that acceptance played a vital role in community resilience after a series of flood events in an Australian town. Garrison and Sasser (2009) found that families who were directly impacted by Hurricane Katrina successfully used acceptance as a way to make meaning out of this traumatic event. Zhou and Wu (2018) concluded that hope had an indirect and positive effect on posttraumatic growth via acceptance, in a sample of 397 adolescent survivors of the 2013 Ya'an earthquake in China.

Interestingly, Zhou and Wu (2018) concluded that acceptance should be utilised in developing methods for fostering posttraumatic growth after a natural disaster. Similar suggestions have been made by researchers who have studied coping in the context of psychiatric and medical illness (Ciobanu et al., 2020; Ford et al., 2018; Jabbarian et al., 2020; Krzeczkowska et al., 2015; Pérez-San-Gregorio et al., 2017). Acceptance has long been recognized as an effective strategy to reduce symptoms of psychological distress in this

context (Ciobanu et al., 2020; Ford et al., 2018; Jabbarian et al., 2020; Krzeczkowska et al., 2015; Pérez-San-Gregorio et al., 2017). Consequently, Krzeczkowska et al. (2015) concluded that coping strategies such as acceptance should be enhanced through psychological interventions like acceptance and commitment therapy (ACT) in people who are coping with incurable or chronic health conditions.

Based on the results of the current study as well as previous post-disaster research (Casacchia et al., 2013; Garrison & Sasser, 2009; Madsen & O'Mullan, 2016; Weissman, 2012; Zhou & Wu, 2018), the same could be true for parents who are coping with the impact of a pandemic. If acceptance is effective at reducing perceived stress in parents during a COVID-19 lockdown, targeted interventions like ACT might be beneficial for parents who are suffering from high levels of perceived stress. As mentioned earlier (under Section 5.2.3), the participants in the current study who indicated that their mental health was negatively impacted by the COVID-19 restrictions reported significantly higher levels of perceived stress (p <.001 and B = 4.70 under Survey 1).

ACT is a widely researched psychological intervention that focuses on the coping strategy of acceptance (ACT; Prochaska & Norcross, 2014). Research shows that ACT is an effective and evidence-based intervention across disorders, including anxiety and mood disorders such as depression (Prochaska & Norcross, 2014). Several recent studies have suggested that ACT could be used in the face of the current COVID-19 pandemic (Arnold et al., 2020; Arslan et al., 2020; Borges et al., 2020; Moran & Ming, 2020). Due to the unpredictability of COVID-19 and the need for self-isolation and physical distancing, coping strategies that people typically use in times of stress are not available (Arnold et al., 2020). According to Arnold et al. (2020), ACT constitutes a mental health intervention that is responsive to the unique demands of the current COVID-19 pandemic. ACT is based on the theory that psychopathology is the result of resisting unwanted events that are outside of our control (Arnold et al., 2020; Arslan et al., 2020; Prochaska & Norcross, 2014). Thus, the focus of ACT is to let go of this struggle and accept reality as it is (even when it is unwanted). According to Arnold et al. (2020), Arslan et al. (2020), Borges et al. (2020), and Moran and Ming (2020), this is what makes ACT an especially suitable intervention during the current COVID-19 pandemic. According to the results of this study, an intervention based on acceptance might indeed be effective in reducing perceived stress.

5.2.8 THE USE OF ONLINE COPING STRATEGIES DID NOT PREDICT LEVELS OF PERCEIVED STRESS

In the current study, the use of online coping strategies was not found to be a significant predictor of perceived stress. This may be because the use of online coping strategies is ineffective in reducing stress during a lockdown, but it could also be due to another reason (including measurement error). There may be important differences, for example, in the amount of time that parents spent on social media to reduce stress (30 minutes a day might be effective at reducing stress, whereas 2 hours a day may increase stress). As the current study used dichotomous questions rather than a Likert scale, it has not examined such differences. As such, the only conclusion that can be drawn based on the current study is that the answers to the Extra Coping Questions on the use of online coping strategies (did not seem to significantly predict levels of perceived stress in the sample of New Zealand-based parents that participated in this study.

Despite the above-mentioned limitations, the findings of the current study (with regards to the use of online coping strategies) are in line with previous research on the effect of online coping strategies on stress (Huang, 2010; van Ingen et al., 2016; van Ingen & Matzat, 2018; van Ingen & Wright, 2016). Huang (2010) and Van Ingen et al. (2016) reached similar conclusions in their research on the effects of online coping strategies on stress and wellbeing. In both studies, online coping was conceptualized as the use of informal online resources (such as social media) to cope with stress. Examples constituted searching information online as a form of problem-focused coping, the use of social media for emotional support, or engaging in online gaming as a type of mental disengagement (van Ingen et al., 2016).

Rains and Young (2008) on the other hand, conducted a meta-analysis on the use of online coping strategies with a more formal character: computer-mediated support group interventions. Rains and Young (2008) found that these formal computer-mediated support group interventions increased quality of life and decreased depression. This is an interesting finding, that suggests that the use of online coping strategies may be effective in reducing stress when they have a more formal character.

During a pandemic-related lockdown – when people are instructed to self-isolate at home – online resources such as email and social media may constitute the only way in which people can stay socially connected whilst physically distanced. This is probably why the New

Zealand government actively encouraged New Zealanders to use online resources as a way to cope with the lockdown (New Zealand Government, 2020b). However, if research shows that informal online coping strategies are not effective in reducing stress, the use of more formal online coping resources may be worth exploring. Especially if previous research shows that formal computer-mediated support group interventions have been effective at reducing stress and improving wellbeing in other settings (Rains & Young, 2009). This conclusion is in line with the recommendation by Esterwood and Saeed (2020), who studied the impact of past pandemics on mental health symptomatology and concluded that mental health providers should offer online interventions.

The multiple regression that was performed on the 14 coping dimensions of the Brief COPE Inventory showed that both acceptance and the use of emotional support predicted a reduction in perceived stress under Survey 1. This finding makes the use of a formal computer-mediated support group intervention even more interesting as a way of coping with a pandemic-related lockdown. A computer-mediated support group could offer emotional support in an online setting that can be made widely available during a lockdown. Moreover, as acceptance was found to predict a reduction in perceived stress in the current study as well, a computer-mediated support group intervention could be based on an evidence-based intervention like ACT that focuses on the use of acceptance in times of stress (Prochaska & Norcross, 2014).

5.3 LIMITATIONS OF THE CURRENT STUDY

Even though the findings of the current study are interesting, there are important limitations that need to be addressed. Firstly, the current study used a convenience sample rather than a random sample. As such, the assumption of random sampling was not met for any of the statistical analyses that were conducted for this study (Field, 2018). Secondly, the sample size was relatively small (and underpowered) for the number of analyses that were conducted.

Thirdly, there is uncertainty around the validity and reliability of some of the measures that were specifically designed for (and used in) the current study. Previous research has shown that the Brief COPE Inventory and the PSS-10 have adequate reliability and validity (Carver, 1997b; Cohen et al., 1983), but this was not the case for the Extra Coping Questions, the questions on personal circumstances, the Appraisal Question, and the questions of the Effects Matrix. As previously mentioned, the Extra Coping Questions on the use of online coping

strategies were dichotomous and did not examine the amount of time participants spent on social media or the quality of the parenting resources that the participants used (it could have been useful for example to know whether these parenting resources were evidence-based). The reason why the Extra Coping Questions were not more comprehensive is twofold. Firstly, the focus of the current study was on the coping strategies of the Brief COPE Inventory, and secondly, there was a need to minimize the response burden on participants during an already challenging time. Moreover, there was little time to study the validity and reliability of the questions that were designed specifically for this exploratory study, as it was designed and administered in a rather short timeframe (i.e. during the 2020 lockdown in New Zealand).

Lastly, it is important to mention that most of the participants in the current study were female (N = 231 versus N = 10 male). This was not entirely unexpected, as the current study focused on primary caregivers and women are more likely to fulfill this role in New Zealand (Ministry of Social Development, 2004). Most of the participants in this study did indeed indicate that they identified as the "primary caregiver" of the children in their care (N = 181 or 74.8%, versus N = 60 who indicated that they "shared" caregiving).[1]

Based on the above, there is a degree of uncertainty around the results of the current study, especially around the generalizability of these results.

[1] There was 1 participant who did not answer this question.

6 CONCLUSION

In conclusion, the results of the current study are summarized below. Firstly, for every extra adult who worked from home during the lockdown (from 0 to 1, 1 to 2, or 2 to 3) New Zealand-based parents experienced an increase in perceived stress (PSS-10 score) at $B = 1.85$ and $p < .05$. The use of strategies to separate working at home from family life reduced perceived stress at $B = -2.51$ and $p < .05$ (compared to parents who did not use such strategies). What exactly these strategies comprised, cannot be inferred based on the results of the current study.

Appraisal of the lockdown significantly predicted perceived stress under Survey 1. Parents who appraised the impact of the lockdown on their family as "mostly positive" versus parents who appraised it as "mixed" perceived lower levels of perceived stress at $B = -7.29$ and $p < .05$. Parents who appraised the impact of the lockdown as "mostly negative" experienced higher levels of perceived stress at $B = 7.97$ and $p < .05$ compared to parents who appraised the impact of the lockdown as "mixed". Overall, most New Zealand-based parents appraised the impact of the lockdown as "mixed" ($N = 155$ or 64%), followed by 66 (27.3%) parents who appraised the lockdown as "mostly positive" and 19 participants (7.9%) rated the lockdown as "mostly negative".

On the Effects Matrix in Survey 1, higher scores on the item "it has a negative effect on my/our mental wellbeing" predicted higher levels of perceived stress at $B = 4.70$ and $p < .05$. A total of 24% of the participants in Survey 1 indicated that the lockdown negatively impacted their mental health "fairly often" or "very often". For Survey 2, this number was 14.4%. The item "it puts a strain on the relationships within our bubble" also predicted an increase in perceived stress ($B = 1.48$ and $p < .05$) as did the item "we spend more time together as a family" ($B = .94$ and $p < .05$). Higher scores on the items "we experience less stress from work and/or school and "it allows our family to slow down" predicted a reduction in perceived stress under Survey 1 at respectively $B = -.81$ and $B = -1.00$ (and it both cases at $p < .05$). Under Survey 2, the only item that predicted perceived stress included "it has a negative effect on my/our mental wellbeing" at $B = 2.88$ and $p < .05$.

Out of the coping strategies that were measured with the Brief COPE Inventory, the following coping dimensions predicted an increase in perceived stress under Survey 1 (at $p < .05$): self-blame ($B = 1.94$), behavioural disengagement ($B = 1.56$), self-distraction ($B = .42$), venting ($B = .80$), and planning ($B = .63$). The coping strategies of emotional support and

acceptance on the other hand, predicted a reduction in perceived stress under Survey 1, at respectively B = -.52 and B = -.53 (and in both cases at $p < .05$). Under Survey 2, only three coping dimensions were significant predictors of perceived stress (at $p < .05$): self-blame (B = 1.76), behavioural disengagement (B = 1.21), planning B = .86.

The current study did not find any significant associations between perceived stress and the use of online coping strategies, offline coping strategies, and/or daily routines (as measured with the Extra Coping Questions).

A repeated-measure analysis showed that there was a significant difference in perceived stress scores between Survey 1 and 2. Levels of perceived stress decreased under Survey 2 compared to Survey 1 (mean difference -1.56 at $p < .05$). The effect size of this difference was small though at d = .24. In addition, the use of all 14 dimensions of coping (of the Brief COPE Inventory) decreased under Survey 2 compared to Survey 1. For the following coping dimensions, this decrease was significant at $p < .05$ (although the related effect sizes were all small: self-blame (d = .19), behavioural disengagement (d = .36), self-distraction (d = .33), venting (d = .23), substance use (d = .21), active coping (d = .31), planning (d = .34), positive reframing (d = .26), acceptance (d = .25), instrumental support (d = .18), and emotional support (d = .23).

Based on the above-mentioned results, the question of which strategies parents could use to separate working at home from family during a lockdown in order to effectively reduce perceived stress deserves further research. In addition, the increase in stress that was experienced by New Zealand-based parents who indicated that the lockdown negatively affected their mental health was alarming and requires attention (at B = 4.70 and $p < .05$ under Survey 1 and B = 2.88 and $p < .05$ under Survey 2). The current study proposes that the use of formal computer-mediated support group interventions based on ACT might be an effective psychological intervention for New Zealanders who experience increased levels of perceived stress in relation to the COVID-19 restrictions (Arnold et al., 2020; Arslan et al., 2020; Borges et al., 2020; Casacchia et al., 2013; Esterwood & Saeed, 2020; Garrison & Sasser, 2009; Madsen & O'Mullan, 2016; Moran & Ming, 2020; Prochaska & Norcross, 2014; Rains & Young, 2009; Weissman, 2012; Zhou & Wu, 2018).

7 REFERENCES

Arnold, T., G. Rogers, B., L. Norris, A., Schierberl Scherr, A., Haubrick, K., E. Renna, M., Sun, S., M. Danforth, M., T. Chu, C., S. Silva, E., Whiteley, L. B., & Pinkston, M. (2020). A brief transdiagnostic pandemic mental health maintenance intervention. *Counselling Psychology Quarterly*. https://doi.org/10.1080/09515070.2020.1769026

Arslan, G., Yıldırım, M., Tanhan, A., Buluş, M., & Allen, K.-A. (2020). Coronavirus stress, optimism-pessimism, psychological inflexibility, and psychological health: Psychometric properties of the coronavirus stress measure. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00337-6

Bistricky, S. L., Long, L. J., Lai, B. S., Gallagher, M. W., Kanenberg, H., Elkins, S. R., Harper, K. L., & Short, M. B. (2019). Surviving the storm: Avoidant coping, helping behavior, resilience, and affective symptoms around a major hurricane-flood. *Journal of Affective Disorders*, *257*, 297–306. https://doi.org/10.1016/j.jad.2019.07.044

Blanc, J., Louis, E. F., Joseph, J., Castor, C., & Jean-Louis, G. (2020). What the world could learn from the Haitian resilience while managing COVID-19. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(6), 569–571. https://doi.org/10.1037/tra0000903

Bonaccorsi, G., Pierri, F., Cinelli, M., Flori, A., Galeazzi, A., Porcelli, F., Schmidt, A. L., Valensise, C. M., Scala, A., Quattrociocchi, W., & Pammolli, F. (2020). Economic and social consequences of human mobility restrictions under COVID-19. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, *117*(27), 15530–15535. https://doi.org/10.1073/pnas.2007658117

Borges, L. M., Barnes, S. M., Farnsworth, J. K., Drescher, K. D., & Walser, R. D. (2020). A contextual behavioral approach for responding to moral dilemmas in the age of COVID-19. *Journal of Contextual Behavioral Science*, *17*, 95–101. https://doi.org/10.1016/j.jcbs.2020.06.006

Carnegie Mellon University. (2015). *Scales—Laboratory for the Study of Stress, Immunity, and Disease—Department of Psychology—Carnegie Mellon University*. https://www.cmu.edu/dietrich/psychology/stress-immunity-disease-lab/scales/index.html

Carver, C. S. (1997a). Brief COPE Inventory. *PsycTESTS*, 1–5. https://doi.org/10.1037/t04102-000

Carver, C. S. (1997b). You want to measure coping but your protocol's is too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, *4*(1), 92–100. https://doi.org/10.1207/s15327558ijbm0401_6

Carver, C. S., & Scheier, M. E. (1981). *Attention and Self-Regulation: A Control-Theory Approach to Human Behavior*. Springer.

Carver, C. S., & Scheier, M. F. (1990). Principles of self-regulation: Action and emotion. In *Handbook of Motivation and Cognition: Foundations of Social Behavior* (Vol. 2, pp. 3–52). Guilford.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*(2), 267–283. https://doi.org/10.1037/0022-3514.56.2.267

Casacchia, M., Bianchini, V., Mazza, M., Pollice, R., & Roncone, R. (2013). Acute stress reactions and associated factors in the help-seekers after the L'Aquila earthquake. *Psychopathology*, *46*(2), 120–130. https://doi.org/10.1159/000339459

Ciobanu, I., Di Patrizio, P., Baumann, C., Schwan, R., Vlamynck, G., Bédès, A., Clerc-Urmès, I., Viennet, S., & Bourion-Bédès, S. (2020). Relationships between coping, anxiety, depression, and health-related quality of life in outpatients with substance use disorders: Results of the SUBUSQOL study. *Psychology, Health & Medicine*, *25*(2), 179–189. https://doi.org/10.1080/13548506.2019.1679847

Clayton, C., Clayton, R., & Potter, M. (2020). *British Families in Lockdown*. Leeds Trinity University.

Clendon, J. (2020, April 8). Parenting in lockdown: Four favourite tools. *Umbrella Wellbeing Ltd*. https://umbrella.org.nz/parenting-in-lockdown-four-favourite-tools/

Cohen, S. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health.* (1988-98838-002; pp. 31–67). Sage Publications, Inc.

Cohen, S., & Janicki-Deverts, D. (2012). Who's Stressed? Distributions of Psychological Stress in the United States in Probability Samples from 1983, 2006, and 20091. *Journal of Applied Social Psychology*, *42*(6), 1320–1334. https://doi.org/10.1111/j.1559-1816.2012.00900.x

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. https://doi.org/10.2307/2136404

Cousins, S. (2020). New Zealand eliminates COVID-19. *The Lancet*, *395*(10235), 1474. https://doi.org/10.1016/S0140-6736(20)31097-7

Dawson, D. L., & Golijani-Moghaddam, N. (2020). COVID-19: Psychological flexibility, coping, mental health, and wellbeing in the UK during the pandemic. *Journal of Contextual Behavioral Science*, *17*, 126–134. https://doi.org/10.1016/j.jcbs.2020.07.010

ECDC. (2020, March 9). *COVID-19 situation update worldwide, as of 3 September 2020*. European Centre for Disease Prevention and Control. https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases

Esterwood, E., & Saeed, S. A. (2020). Past epidemics, natural disasters, covid19, and mental health: Learning from history as we deal with the present and prepare for the future. *Psychiatric Quarterly*. https://doi.org/10.1007/s11126-020-09808-4

Field, A. (2018). *Discovering Statistics using IBM SPSS Statistics*. Sage edge.

Ford, B. Q., Lam, P., John, O. P., & Mauss, I. B. (2018). The psychological health benefits of accepting negative emotions and thoughts: Laboratory, diary, and longitudinal evidence.

Journal of Personality and Social Psychology, *115*(6), 1075–1092. https://doi.org/10.1037/pspp0000157

Garrison, M. E. B., & Sasser, D. D. (2009). Families and disasters: Making meaning out of adversity. In K. E. Cherry (Ed.), *Lifespan perspectives on natural disasters: Coping with Katrina, Rita, and other storms.* (2009-12008-006; pp. 113–130). Springer Science + Business Media. https://doi.org/10.1007/978-1-4419-0393-8_6

Glass, K., Flory, K., Hankin, B. L., Kloos, B., & Turecki, G. (2009). Are coping strategies, social support, and hope associated with psychological distress among Hurricane Katrina survivors? *Journal of Social and Clinical Psychology*, *28*(6), 779–795. https://doi.org/10.1521/jscp.2009.28.6.779

Gunia, A. (2020, April 28). *Why New Zealand's COVID-19 Elimination Strategy Unlikely to Work Elsewhere | Time*. https://time.com/5824042/new-zealand-coronavirus-elimination/

Hancock, F. (2020, January 19). *China's new virus: What you need to know*. Stuff. https://www.stuff.co.nz/world/asia/118903743/chinas-new-virus-what-you-need-to-know

Hewitt, P. L., Flett, G. L., & Mosher, S. W. (1992). The Perceived Stress Scale: Factor structure and relation to depression symptoms in a psychiatric sample. *Journal of Psychopathology and Behavioral Assessment*, *14*(3), 247–257. https://doi.org/10.1007/BF00962631

Huang, C. (2010). Internet use and psychological well-being: A meta-analysis. *Cyberpsychology, Behavior, and Social Networking*, *13*(3), 241–249. https://doi.org/10.1089/cyber.2009.0217

Jabbarian, L. J., Korfage, I. J., Červ, B., van Delden, J. J. M., Deliens, L., Miccinesi, G., Payne, S., Johnsen, A. T., Verkissen, M. N., Wilcock, A., Heide, A., & Rietjens, J. A. C. (2020). Coping strategies of patients with advanced lung or colorectal cancer in six European countries: Insights from the ACTION Study. *Psycho-Oncology*, *29*(2), 347–355. https://doi.org/10.1002/pon.5259

Jackson, T. (2020, April 29). *Coronavirus: What Kiwis enjoyed about lockdown and the things they'll keep*. Stuff. https://www.stuff.co.nz/life-style/well-good/121327792/coronavirus-what-kiwis-enjoyed-about-lockdown-and-the-things-theyll-keep

Jones, K. (2020, April 16). *Parents urged to go easy on themselves in lockdown*. Stuff. https://www.stuff.co.nz/national/education/121043305/parents-urged-to-go-easy-on-themselves-in-lockdown

Korb, D. (2020, June 16). *Age-Based Tips to Help Juggle Parenting & Working at Home During COVID-19*. HealthyChildren.Org. https://www.healthychildren.org/English/health-issues/conditions/COVID-19/Pages/Tips-to-Juggle-Parenting-and-Working-at-Home-COVID-19.aspx

Krzeczkowska, A., Karatzias, T., & Dickson, A. (2015). Pain in people with chronic fatigue syndrome/myalgic encephalomyelitis: The role of traumatic stress and coping strategies. *Psychology, Health & Medicine*, *20*(2), 210–216. https://doi.org/10.1080/13548506.2014.951370

Lambert, S. (2014). Indigenous Peoples and urban disaster: Māori responses to the 2010-12 Christchurch earthquakes. *Australasian Journal of Disaster and Trauma Studies*, *18*(1), 39–48.

Lazarus, R. S. (1984). *Stress, Appraisal, and Coping*. Springer.

Lazarus, R. S. (1993). Coping theory and research: Past, present, and future. *Psychosomatic Medicine*, *55*(3), 234–247. https://doi.org/10.1097/00006842-199305000-00002

Lei, M.-K., & Klopack, E. T. (2020). Social and psychological consequences of the COVID-19 outbreak: The experiences of Taiwan and Hong Kong. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(S1), S35–S37. https://doi.org/10.1037/tra0000633

Lundqvist, L.-O., & Ahlström, G. (2006). Psychometric evaluation of the Ways of Coping Questionnaire as applied to clinical and non-clinical groups. *Journal of Psychosomatic Research*, *60*(5), 485–493. https://doi.org/10.1016/j.jpsychores.2005.08.019

Madsen, W., & O'Mullan, C. (2016). Perceptions of community resilience after a natural disaster in a rural Australian town. *Journal of Community Psychology*, *44*(3), 277–292. https://doi.org/10.1002/jcop.21764

Mental Health Foundation. (2020, March 18). *Looking after your mental health while working during coronavirus*. Mental Health Foundation. https://www.mentalhealth.org.uk/coronavirus/looking-after-your-mental-health-while-working-during-coronavirus

Mesidor, J. K., & Sly, K. F. (2019). Religious coping, general coping strategies, perceived social support, PTSD symptoms, resilience, and posttraumatic growth among survivors of the 2010 earthquake in Haiti. *Mental Health, Religion & Culture*, *22*(2), 130–143. https://doi.org/10.1080/13674676.2019.1580254

Ministry of Education New Zealand. (2020, November 8). *Helping children and young people while they are learning at home*. Education in New Zealand. https://www.education.govt.nz/school/health-safety-and-wellbeing/pastoral-care-and-wellbeing/talking-to-children-about-covid-19-coronavirus/

Ministry of Health NZ. (2020a, February 29). *Single case of COVID-19 confirmed in New Zealand*. Ministry of Health NZ. https://www.health.govt.nz/news-media/media-releases/single-case-covid-19-confirmed-new-zealand

Ministry of Health NZ. (2020b, August 23). *COVID-19: Self-isolation*. Ministry of Health NZ. https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-health-advice-general-public/covid-19-self-isolation-close-contacts-and-travellers

Ministry of Health NZ. (2020c, August 29). *COVID-19—Current cases*. Ministry of Health NZ. https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-current-situation/covid-19-current-cases

Ministry of Social Development. (2004). *New Zealand Families Today*.

Moran, D. J., & Ming, S. (2020). The mindful action plan: Using the map to apply acceptance and commitment therapy to productivity and self-compassion for behavior analysts. *Behavior Analysis in Practice*. https://doi.org/10.1007/s40617-020-00441-y

New Zealand Government. (2020a). *Alert system overview*. Unite against COVID-19. https://covid19.govt.nz/covid-19/restrictions/alert-system-overview/

New Zealand Government. (2020b, August 14). *Maintain physical distancing*. Unite against COVID-19. https://covid19.govt.nz/health-and-wellbeing/protect-yourself-and-others/maintain-physical-distancing/

Newshub. (2020, January 4). How to keep the family dynamic positive during lockdown. *Newshub*. https://www.newshub.co.nz/home/lifestyle/2020/04/how-to-keep-the-family-dynamic-positive-during-lockdown.html

O'Connor, R. C., Wetherall, K., Cleare, S., McClelland, H., Melson, A. J., Niedzwiedz, C. L., O'Carroll, R. E., O'Connor, D. B., Platt, S., Scowcroft, E., Watson, B., Zortea, T., Ferguson, E., & Robb, K. A. (2020). Mental health and well-being during the covid-19 pandemic: Longitudinal analyses of adults in the UK covid-19. *The British Journal of Psychiatry*. https://doi.org/10.1192/bjp.2020.212

O'Neill, M. (2020, January 2). China on high alert following outbreak of SARS-like virus. *NZ Herald*. https://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=12297868

Oni, O., Harville, E., Xiong, X., & Buekens, P. (2015). Relationships among stress coping styles and pregnancy complications among women exposed to Hurricane Katrina. *Journal of Obstetric, Gynecologic, & Neonatal Nursing: Clinical Scholarship for the Care of Women, Childbearing Families, & Newborns*, *44*(2), 256–267. https://doi.org/10.1111/1552-6909.12560

Peng, C. Y., Harwell, M., Liou, S. M., & Ehman, L. H. (2006). Advances in missing data methods and implications for educational research. In *Real Data Analysis* (pp. 31–78). Information Age.

Pérez-San-Gregorio, M. Á., Martín-Rodríguez, A., Borda-Mas, M., Avargues-Navarro, M. L., Pérez-Bernal, J., & Gómez-Bravo, Á. (2017). Coping strategies in liver transplant recipients and caregivers according to patient posttraumatic growth. *Frontiers in Psychology, 8*. http://ezproxy.massey.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,cookie,url,uid&db=psyh&AN=2017-08000-001&site=ehost-live&scope=site

Perrott, A. (2020, January 7). *Mental, financial, relationship strains of COVID-19 lockdown will show up in general practice in coming months*. New Zealand Doctor. https://www.nzdoctor.co.nz/article/print-archive/mental-financial-relationship-strains-covid-19-lockdown-will-show-general

Prickett, Kate C., Fletcher, M., & Chapple, S. (2020, June 26). *Time, family, work – and bored zombies. New Zealanders open up about life in coronavirus lockdown*. The Conversation. http://theconversation.com/time-family-work-and-bored-zombies-new-zealanders-open-up-about-life-in-coronavirus-lockdown-140237

Prickett, K.C., Fletcher, M., Chapple, S., Nguyen, D., & Smith, C. (2020a). *Life in Lockdown: The Economic and Social Effect of Lockdown during Alert Level 4 in New Zealand* (No. 20/03). Roy McKenzie Centre for the Study of Families and Children and Institute for Governance and Policy Studies. https://www.wgtn.ac.nz/__data/assets/pdf_file/0010/1865512/WP-20-03-covid-19-life-in-lockdown.pdf

Prime, H., Wade, M., & Browne, D. T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, *75*(5), 631–643. https://doi.org/10.1037/amp0000660

Prochaska, J. O., & Norcross, J. C. (2014). *Systems of Psychotherapy* (Eighth). Cengage Learning.

Qu, Z., Tian, D., Zhang, Q., Wang, X., He, H., Zhang, X., Huang, L., & Xu, F. (2012). The impact of the catastrophic earthquake in China's Sichuan province on the mental health of pregnant women. *Journal of Affective Disorders*, *136*(1–2), 117–123. https://doi.org/10.1016/j.jad.2011.08.021

Rains, S. A., & Young, V. (2009). A meta-analysis of research on formal computer-mediated support groups: Examining group characteristics and health outcomes. *Human Communication Research*, *35*(3), 309–336. https://doi.org/10.1111/j.1468-2958.2009.01353.x

Revet, S. (2020, April 20). *COVID-19, A Natural Disaster? Interview | Sciences Po CERI*. Sciences Po: Centre for International Studies. https://www.sciencespo.fr/ceri/en/content/covid-19-natural-disaster-interview

Roberti, J. W., Harrington, L. N., & Storch, E. A. (2006). Further Psychometric Support for the 10-Item Version of the Perceived Stress Scale. *Journal of College Counseling*, *9*(2), 135–147. https://doi.org/10.1002/j.2161-1882.2006.tb00100.x

Rothman, K. J. (1990). No Adjustments Are Needed for Multiple Comparisons. *Epidemiology*, *1*(1), 43–46.

Saddock, & Saddock. (2015). *Synopsis of Psychiatry*.

Salisbury, R. (2020, March 29). *How can we keep our loving relationship alive during lockdown?* Stuff. https://www.stuff.co.nz/life-style/well-good/teach-me/120594346/how-can-we-keep-our-loving-relationship-alive-during-lockdown

Samios, C., & Hollows, K. (2012). Finding benefits in the aftermath of Australia's Black Saturday bushfires: Can distant witnesses find benefits and do benefits found relate to better adjustment? *Traumatology*, *18*(4), 27–36. https://doi.org/10.1177/1534765612437379

Scherer, K. R., & Moors, A. (2019). The emotion process: Event appraisal and component differentiation. *Annual Review of Psychology*, *70*, 719–745. https://doi.org/10.1146/annurev-psych-122216-011854

Schlomer, G. L., Bauman, S., & Card, N. A. (2010). Best practices for missing data management in counseling psychology. *Journal of Counseling Psychology*, *57*(1), 1–10. https://doi.org/10.1037/a0018082

Shakespeare-Finch, J., Bowen-Salter, H., Cashin, M., Badawi, A., Wells, R., Rosenbaum, S., & Steel, Z. (2020). Covid-19: An Australian perspective. *Journal of Loss and Trauma*. https://doi.org/10.1080/15325024.2020.1780748

Sibley, C. G., Greaves, L. M., Satherley, N., Wilson, M. S., Overall, N. C., Lee, C. H. J., Milojev, P., Bulbulia, J., Osborne, D., Milfont, T. L., Houkamau, C. A., Duck, I. M., Vickers-Jones, R., & Barlow, F. K. (2020). Effects of the COVID-19 pandemic and nationwide lockdown on trust, attitudes toward government, and well-being. *American Psychologist*, *75*(5), 618–630. https://doi.org/10.1037/amp0000662

Stratta, P., Capanna, C., Carmassi, C., Patriarca, S., Di Emidio, G., Riccardi, I., Collazzoni, A., Dell'Osso, L., & Rossi, A. (2014). The adolescent emotional coping after an earthquake: A risk factor for suicidal ideation. *Journal of Adolescence*, *37*(5), 605–611. https://doi.org/10.1016/j.adolescence.2014.03.015

Stratta, P., Capanna, C., Dell'Osso, L., Carmassi, C., Patriarca, S., Di Emidio, G., Riccardi, I., Collazzoni, A., & Rossi, A. (2015). Resilience and coping in trauma spectrum symptoms prediction: A structural equation modeling approach. *Personality and Individual Differences*, *77*, 55–61. https://doi.org/10.1016/j.paid.2014.12.035

Strongman, S. (2020). *Covid-19 pandemic timeline*. http://shorthand.radionz.co.nz/coronavirus-timeline/index.html

Thomas, M. (2020, October 4). *How not to destroy your relationship during lockdown*. NZ Herald. https://www.nzherald.co.nz/lifestyle/how-not-to-destroy-your-relationship-during-lockdown/PZEYZH6OGV76C7HNRMWZMCBFOI/

van Ingen, E., & Matzat, U. (2018). Inequality in mobilizing online help after a negative life event: The role of education, digital skills, and capital-enhancing Internet use. *Information, Communication & Society*, *21*(4), 481–498. https://doi.org/10.1080/1369118X.2017.1293708

van Ingen, E., Utz, S., & Toepoel, V. (2016). Online coping after negative life events: Measurement, prevalence, and relation with internet activities and well-being. *Social Science Computer Review*, *34*(5), 511–529. https://doi.org/10.1177/0894439315600322

van Ingen, E., & Wright, K. B. (2016). Predictors of mobilizing online coping versus offline coping resources after negative life events. *Computers in Human Behavior*, *59*, 431–439. https://doi.org/10.1016/j.chb.2016.02.048

Walter, P. (2020, April 30). *New Zealand has 'effectively eliminated' coronavirus. Here's what they did right.* Travel. https://www.nationalgeographic.com/travel/2020/04/what-new-zealand-did-right-in-battling-coronavirus/

Weissman, A. S. (2012). Feeling powerless? 11 tips to help parents and kids cope with stress and worry in the aftermath of natural disasters: STOP and COPE. *The Behavior Therapist*, *35*(8), 157–159.

WHO. (2020a, June 29). *Timeline of WHO's response to COVID-19*. https://www.who.int/news-room/detail/29-06-2020-covidtimeline

WHO. (2020b, September 1). *WHO Statement Regarding Cluster of Pneumonia Cases in Wuhan, China*. https://www.who.int/china/news/detail/09-01-2020-who-statement-regarding-cluster-of-pneumonia-cases-in-wuhan-china

WHO. (2020c, November 3). *WHO Director-General's opening remarks at the media briefing on COVID-19—11 March 2020*. https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

Wiles, S. (2020, January 28). The Wuhan coronavirus is highly likely to arrive in NZ, but please don't freak out. *Newshub*. https://www.newshub.co.nz/home/new-zealand/2020/01/the-wuhan-coronavirus-is-highly-likely-to-arrive-in-nz-but-please-don-t-freak-out.html

Wisner, B., & Adams, J. (2020). *Environmental Health in Emergencies and Disasters: A Practical Guide*. World Health Organisation. https://apps.who.int/iris/bitstream/handle/10665/42561/9241545410_eng.pdf;jsessionid=D213487FE2050F56EC7810B2A4E75104?sequence=1

Yang, J., Yang, Y., Liu, X., Tian, J., Zhu, X., & Miao, D. (2010). Self-efficacy, social support, and coping strategies of adolescent earthquake survivors in China. *Social Behavior and Personality: An International Journal*, *38*(9), 1219–1228. https://doi.org/10.2224/sbp.2010.38.9.1219

Young, M. (2020, March 31). Covid 19 coronavirus lockdown: Working parents will face psychological challenges. *NZ Herald*. https://www.nzherald.co.nz/lifestyle/news/article.cfm?c_id=6&objectid=12321418

Zacher, H., & Rudolph, C. W. (2020). Individual differences and changes in subjective wellbeing during the early stages of the COVID-19 pandemic. *American Psychologist*. https://doi.org/10.1037/amp0000702

Zeidner, M., & Endler, N. S. (1996). *Handbook of Coping: Theory, Research, Applications*. John Wiley & Sons Inc.

Zhou, X., & Wu, X. (2018). The mediating roles of acceptance and cognitive reappraisal in the relation between hope and posttraumatic growth among adolescents after the Ya'an earthquake. *Journal of Pacific Rim Psychology*, *12*. https://doi.org/10.1017/prp.2018.14

8 APPENDICES

APPENDIX 1: RESEARCH ADVERTISEMENT

KIWI PARENTS: ***how do you cope with the COVID-19 restrictions?***

Are you a New Zealand-based parent/caregiver aged 18 years or over with tamariki (younger than 18 years of age) living in your Bubble? Help us understand how Kiwi parents cope with the COVID-19 restrictions by taking part in our online survey. Participating is possible until the 16th of May. For more information:

visit our website
https://massey.au1.qualtrics.com/jfe/form/SV_2cyGjqfjOoQ8Zgh

write us an email
sarah.stoop.1@uni.massey.ac.nz

or private message our Facebook page
@kiwiparentscopingwithcovid19restrictions

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application SOB 20/05. If you have any concerns about the conduct of this research, please contact Dr Gerald Harrison, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83570, email humanethicsouthb@massey.ac.nz. Photo by Oxana Lyashenko, obtained from www.unsplash.com.

APPENDIX 2: THE BRIEF COPE INVENTORY

Items and subscales of the Brief COPE Inventory (Carver, 1997a)

Scale	Items
Self-distraction	(1) I have been turning to work or other activities to take my mind off things
	(19) I have been doing something to think about it less, such as watching TV, reading, daydreaming, or sleeping
Active coping	(2) I have been concentrating my efforts on doing something about the situation I am in
	(7) I have been taking action to try to make the situation better
Denial	(3) I have been saying to myself "this isn't real."
	(8) I have been refusing to believe that it has happened
Substance use	(4) I have been using alcohol or other drugs to feel better
	(11) I have been using alcohol or other drugs to help me get through
Emotional support	(5) I have been getting emotional support from others
	(15) I have been getting comfort and understanding from someone
Instrumental support	(10) I have been getting help and advice from other people
	(23) I have been trying to get advice or help from other people
Behavioural disengagement	(6) I have been giving up trying to deal with it
	(16) I have been giving up the attempt to cope
Venting	(9) I have been saying things to let my unpleasant feelings escape
	(21) I have been expressing my negative feelings
Positive reframing	(12) I have been trying to see it in a different light, to make it seem more positive
	(17) I have been looking for something good in what is happening
Planning	(14) I have been trying to come up with a strategy about what to do
	(25) I have been thinking hard about what steps to take
Humor	(18) I have been making jokes about it
	(28) I have been making fun of the situation
Acceptance	(20) I have been accepting the reality of the fact that it has happened
	(24) I have been learning to live with it
Religion	(22) I have been trying to find comfort in my religion/spiritual beliefs
	(27) I have been praying or meditating
Self-blame	(13) I have been criticizing myself
	(26) I have been blaming myself for things that happened

APPENDIX 3: THE PSS-10

Items of the PSS-10 (Cohen et al., 1983)

Item	Question
(1)	In the last four weeks, how often have you been upset because of something that happened unexpectedly?
(2)	In the last four weeks, how often have you felt that you were unable to control the important things in your life?
(3)	In the last four weeks, how often have you felt nervous and "stressed"?
(4)	In the last four weeks, how often have you felt confident about your ability to handle your personal problems?
(5)	In the last four weeks, how often have you felt things were going your way?
(6)	In the last four weeks, how often have you found that you could not cope with all the things you had to do?
(7)	In the last four weeks, how often have you been able to control irritations in your life?
(8)	In the last four weeks, how often have you felt on top of things?
(9)	In the last four weeks, how often have you felt angered because of things that were outside of your control?
(10)	In the last four weeks, how often have you felt difficulties were piling up so high that you could not overcome them?

Note. Participants were asked to rate these items on a 5-point Likert Scale (0=never, 1=almost never, 2=sometimes, 3= fairly often, 4=very often)

APPENDIX 4: PERMISSION TO USE THE PSS-10

PERMISSION FOR USE OF THE PERCEIVED STRESS SCALE

I apologize for this automated reply. Thank you for your interest in our work.

PERMISSION FOR USE BY STUDENTS AND NONPROFIT ORGANIZATIONS: If you are a student, a teacher, or are otherwise using the Perceived Stress Scale (PSS) without making a profit on its use, you have my permission to use the PSS in your work. Note that this is the only approval letter you will get. I will not be sending a follow-up letter or email specifically authorizing you (by name) to use the scale.

PERMISSION "FOR PROFIT" USE: If you wish to use the PSS for a purpose other than teaching or not for profit research, or you plan on charging clients for use of the scale, you will need to see the next page: "Instructions for permission for profit related use of the Perceived Stress Scale".

QUESTIONS ABOUT THE SCALE: Information concerning the PSS can be found at https://www.cmu.edu/dietrich/psychology/stress-immunity-disease-lab/index.html (**click on scales on the front page**). Questions about reliability, validity, norms, and other aspects of psychometric properties can be answered there. The website also contains information about administration and scoring procedures for the scales. Please do not ask for a manual. There is no manual. Read the articles on the website for the information that you need.

TRANSLATIONS: The website (see URL above) also includes copies of translations of the PSS into multiple languages. These translations were done *by other investigators*, not by our lab, and we take no responsibility for their psychometric properties. If you translate the scale and would like to have the translation posted on our website, please send us a copy of the scale with information regarding its validation, and references to relevant publications. If resources are available to us, we will do our best to post it so others may access it.

Good luck with your work.

Sheldon Cohen
Robert E. Doherty University Professor of Psychology
Department of Psychology
Baker Hall 335-D
Carnegie Mellon University
Pittsburgh, PA 15213

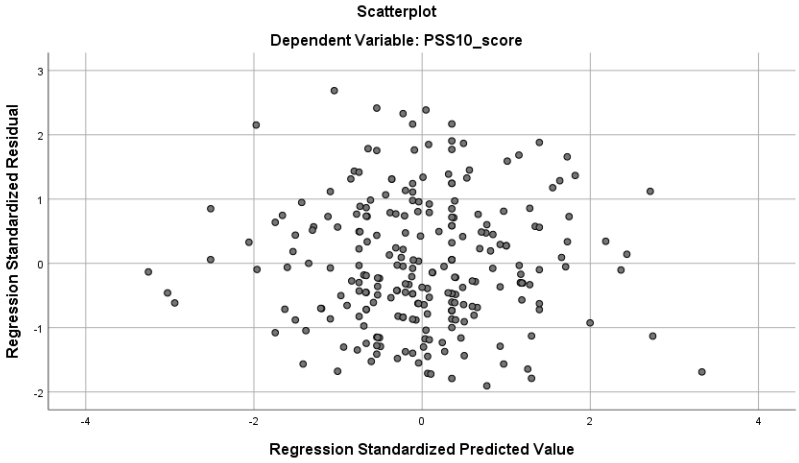
APPENDIX 5: DESCRIPTIVE STATISTICS OF THE PSS-10 UNDER SURVEY 1

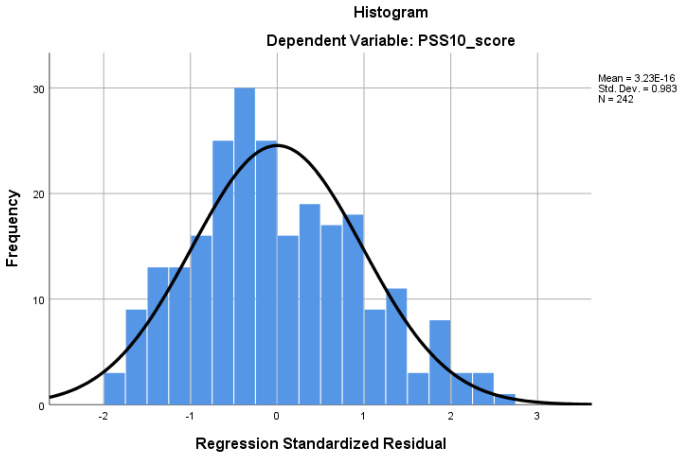
Item *In the last four weeks…*	Range	*M*	*SD*
(1) How often have you been upset because of something that happened unexpectedly?	0 – 4	1.87	1.04
(2) How often have you felt that you were unable to control the important things in your life?	0 – 4	1.94	1.16
(3) How often have you felt nervous and "stressed"?	0 – 4	2.34	1.02
(4) How often have you felt confident about your ability to handle your personal problems?	0 – 4	1.33	.95
(5) How often have you felt things were going your way?	0 - 4	1.71	.84
(6) How often have you found that you could not cope with all the things you had to do?	0 - 4	1.90	1.12
(7) How often have you been able to control irritations in your life?	0 - 4	1.63	.79
(8) How often have you felt on top of things?	0 - 4	1.76	.96
(9) How often have you felt angered because of things that were outside of your control?	0 - 4	1.80	1.02
(10) How often have you felt difficulties were piling up so high that you could not overcome them?	0 - 4	1.57	1.16

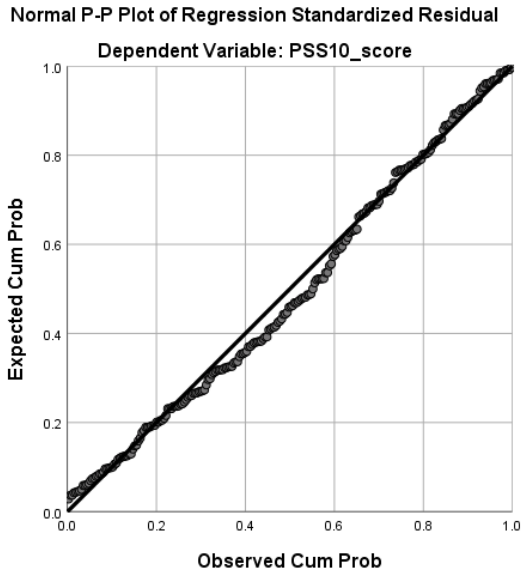
APPENDIX 6: DESCRIPTIVE STATISTICS OF THE BRIEF COPE INVENTORY UNDER SURVEY 1

Item	*M*	*SD*
(1) I have been turning to work or other activities to take my mind off things	2.07	.90
(2) I have been concentrating my efforts on doing something about the situation	2.31	.91
(3) I have been saying to myself "this isn't real."	1.34	.61
(4) I have been using alcohol or other drugs to feel better	1.43	.69
(5) I have been getting emotional support from others	2.10	.77
(6) I have been giving up trying to deal with it	1.54	.76
(7) I have been taking action to try to make the situation better	2.64	.85
(8) I have been refusing to believe that it has happened	1.12	.37
(9) I have been saying things to let my unpleasant feelings escape	1.78	.76
(10) I have been getting help and advice from other people	1.94	.78
(11) I have been using alcohol or other drugs to help me get through	1.37	.66
(12) I have been trying to see it in a different light, to make it seem more positive	2.59	.88
(13) I have been criticizing myself	2.12	1.02
(14) I have been trying to come up with a strategy about what to do	2.50	.88
(15) I have been getting comfort and understanding from someone	2.33	.88
(16) I have been giving up the attempt to cope	1.37	.68
(17) I have been looking for something good in what is happening	2.88	.87
(18) I have been making jokes about it	2.34	.95
(19) I have been doing something to think about it less	2.39	.95
(20) I have been accepting the reality of the fact that it has happened	3.44	.77
(21) I have been expressing my negative feelings	2.21	.76
(22) I have been trying to find comfort in my religion/spiritual beliefs	1.51	.87
(23) I have been trying to get advice or help from other people	1.79	.71
(24) I have been learning to live with it	3.18	.80
(25) I have been thinking hard about what steps to take	2.43	.89
(26) I have been blaming myself for things that happened	1.43	.80
(27) I have been praying or meditating	1.50	.81
(28) I have been making fun of the situation	2.04	.89
(29) I have been using karakia, waiata, whakatauki, pūrākau or other mātauranga Māori and/or tikanga Māori	1.21	.56

APPENDIX 7: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF PERSONAL CIRCUMSTANCES AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 1







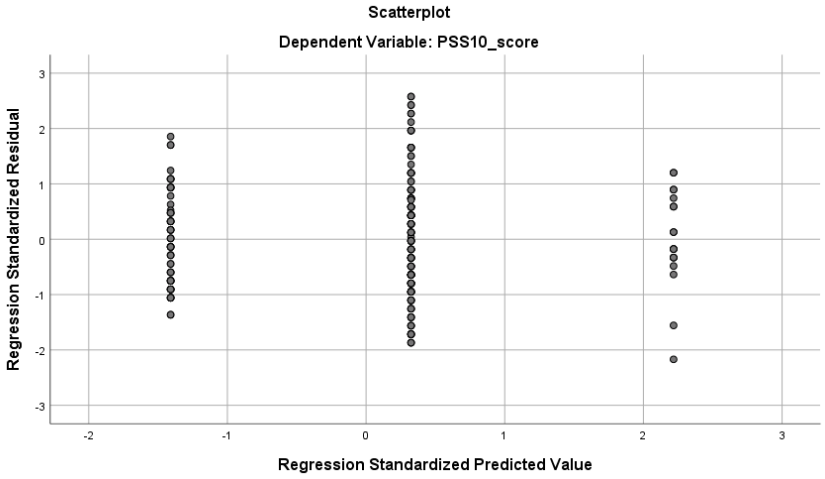
APPENDIX 8: LINEAR MODEL OF PERSONAL CIRCUMSTANCES AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 1

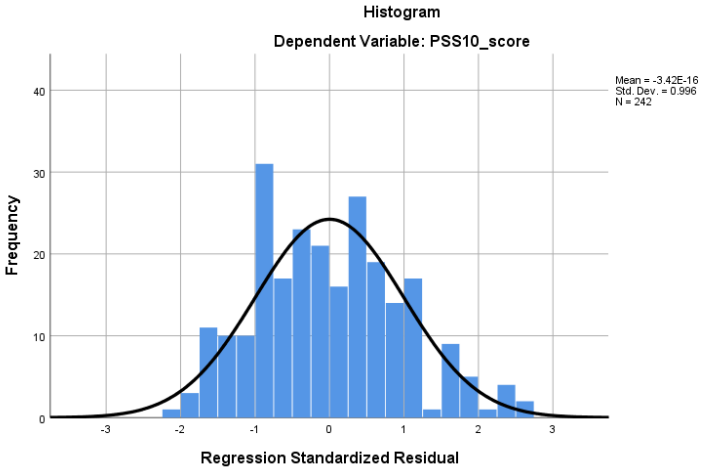
Linear model of personal circumstances as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

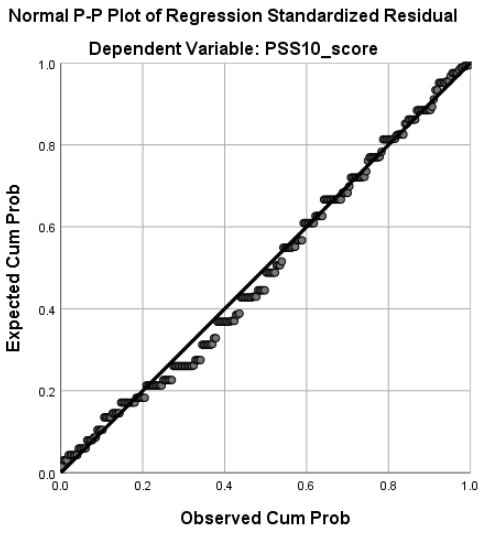
	B	*SE B*	*B*	*T*	*P*
Constant	14.83	1.64		9.02	<.001
	(11.59, 18.07)				
Number of adults in bubble who have been gainfully employed	-.87	.85	-.08	-1.03	.304
	(-2.54, .80)				
Number of adults in bubble who have worked as an essential service worker	-1.16	.72	-.11	-1.61	.110
	(-2.58, .26)				
Number of adults in bubble who have worked from home	1.85	.82	.17	2.26	.025
	(.23, 3.46)				
Number of adults in bubble who have studied from home	-.24	.94	-.02	-.25	.801
	(-2.10, 1.62)				
Number of adults in bubble who have lost paid employment	1.02	1.43	.05	.71	.476
	(-1.80, 3.84)				
Number of adults in bubble who have had hours of paid employment reduced	1.67	1.06	.13	1.58	.115
	(-.41, 3.75)				
Number of adults in bubble who have had income reduced	.51	.99	.05	.51	.608
	(-1.44, 2.46)				
Number of adults in bubble who have spent more time at home than usual	.89	.83	.07	1.07	.285
	(-.75, 2.54)				

Note. $R^2=.07$; $\Delta R^2=.04$ ($p=.02$).

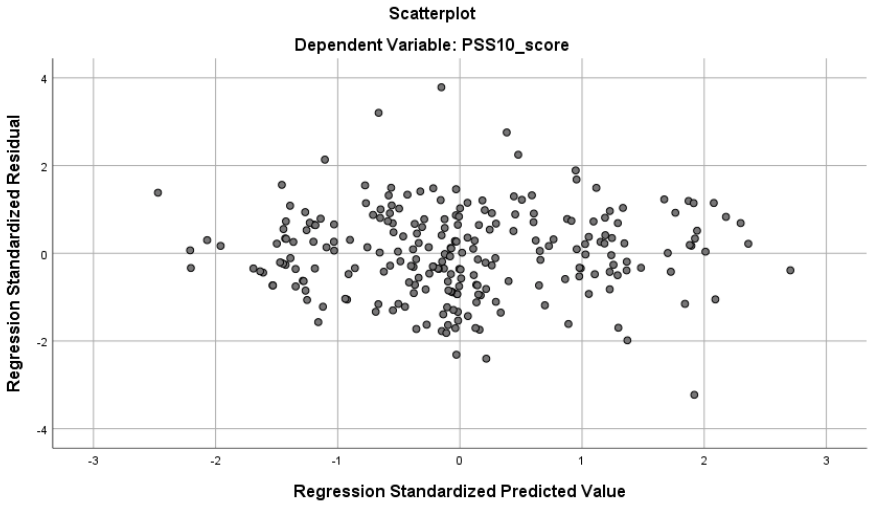
APPENDIX 9: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF APPRAISAL AS PREDICTOR OF PSS-10 SCORE UNDER SURVEY 1

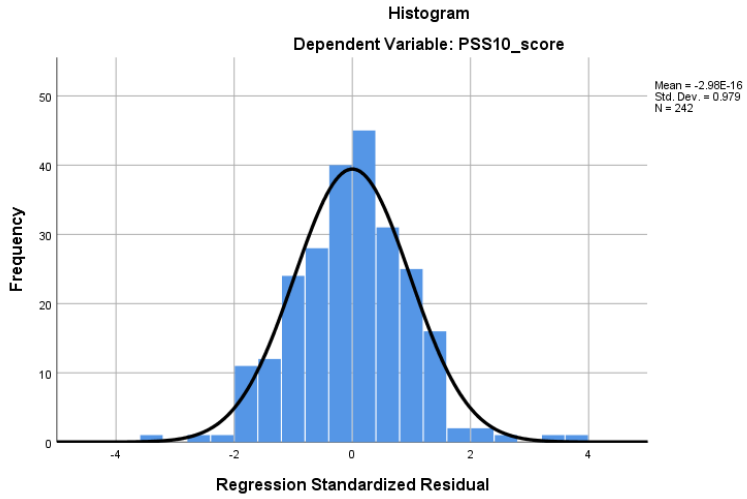


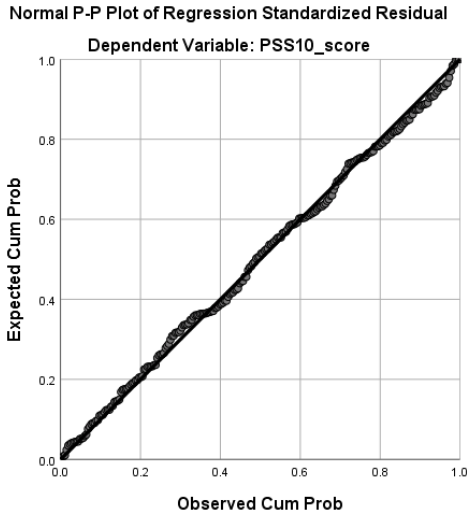




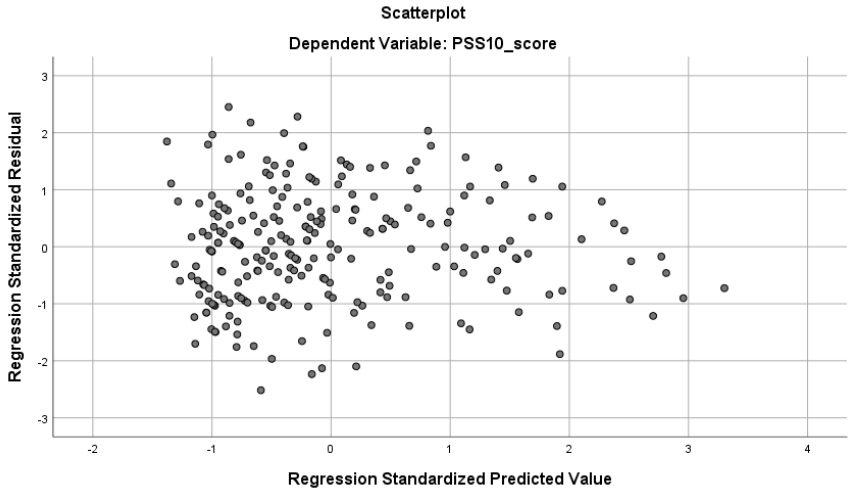
APPENDIX 10: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF EFFECTS OF THE LOCKDOWN AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 1

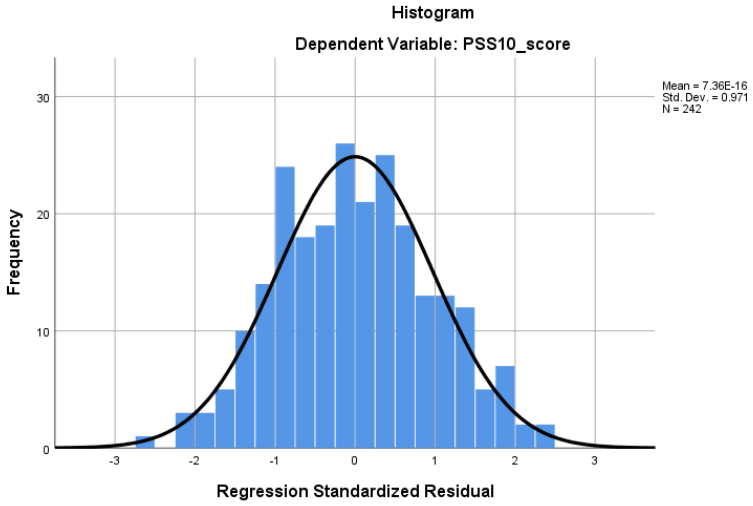


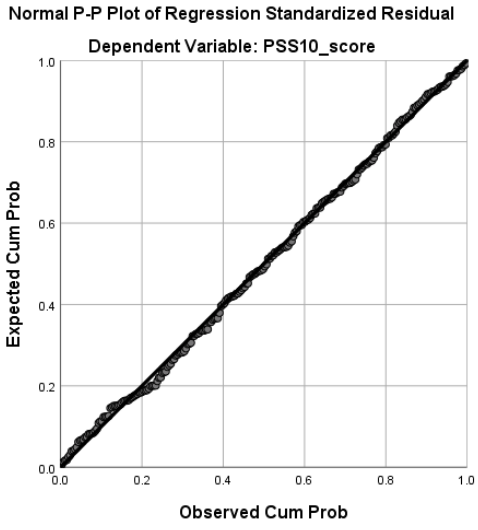




APPENDIX 11: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF COPING DIMENSIONS (BRIEF COPE INVENTORY) AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 1







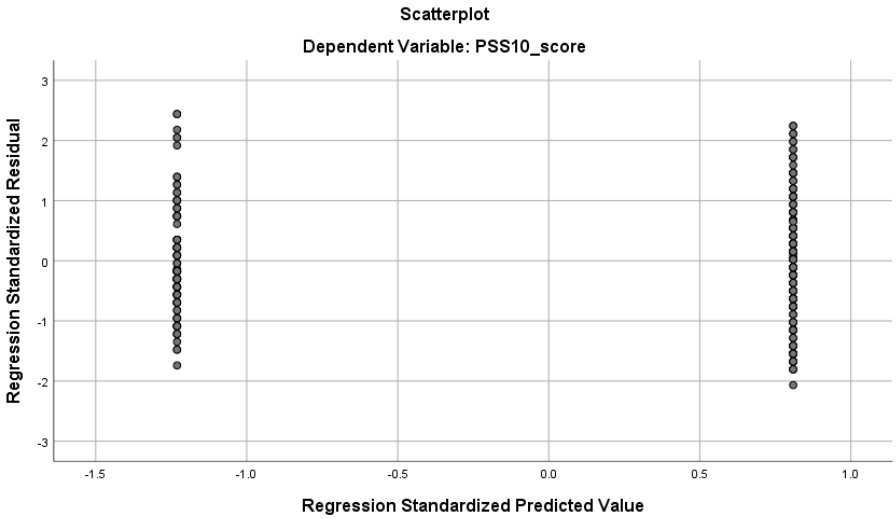
APPENDIX 12: LINEAR MODEL OF THE 28 ITEMS OF THE BRIEF COPE INVENTORY AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 1

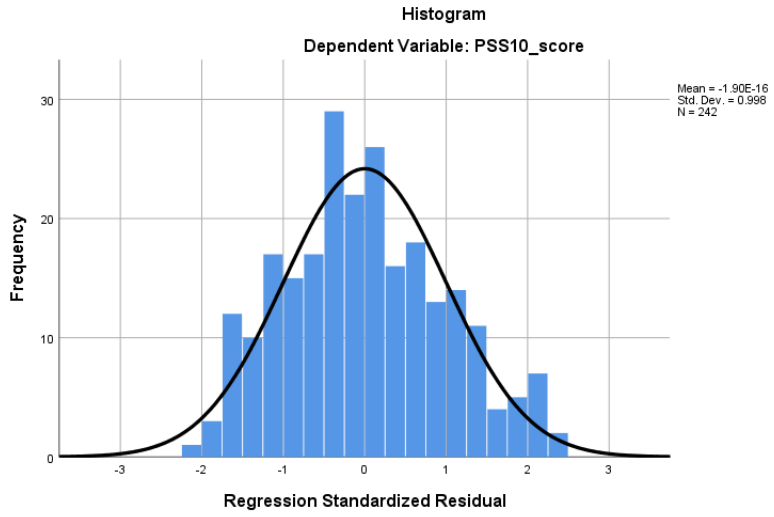
Linear model of the 28-item Brief COPE Inventory as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

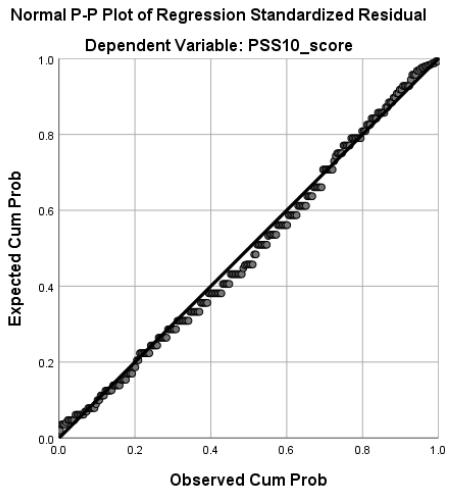
Coping dimension	Items	*B*	*SE*	*B*	*t*	*P*
Constant		5.53 (.67, 10.40)	2.47		2.42	.026
Self-distraction	(1)	.41 (.32, 1.15)	.37	.05	1.11	.269
	(19)	.31 (-.40, 1.02)	.36	.04	.864	.386
Active coping	(2)	.07 (-.32, 1.15)	.41	.01	.17	.864
	(7)	-.56 (-1.43, .31)	.44	-.06	-1.26	.207
Denial	(3)	.48 (-.68, 1.64)	.59	.04	.82	.416
	(8)	1.16 (-,76, 3.07)	.97	.06	1.19	.235
Substance use	(4)	-.36 (-2.10, 1.37)	.88	-.03	-.41	.680
	(11)	.40 (-1.42, 2.22)	.92	.03	.43	.667
Emotional support	(5)	-.53 (-1.53, .47)	.51	-.05	-1.04	.298
	(15)	-.51 (-1.40, .37)	.45	-.06	-1.14	.254
Instrumental support	(10)	.20 (-.86, 1.26)	.54	.02	.37	.714
	(23)	.57 (-.57, 1.72)	.58	.05	.99	.325
Behavioural	(6)	1.20 (-.03, 2.42)	.62	.12	1.92	.056
disengagement	(16)	1.75 (.39, 3.12)	.69	.16	2.54	.012
Venting	(9)	.34 (-.64, 1.31)	.50	.03	.68	.499
	(21)	1.16 (.21, 2.12)	.48	.11	2.40	.017
Positive reframing	(12)	-.48 (-1.36, .40)	.45	-.05	-1.08	.283
	(17)	-.38 (-1.36, .57)	.48	-.04	-.79	.430
Planning	(14)	.66 (-.30, 1.62)	.49	.08	1.35	.179
	(25)	.45 (-.06, 1.91)	.48	.05	.93	.355
Humor	(18)	.65 (-.26, 1.56)	.46	.08	1.40	.162
	(28)	-.94 (-1.89, .02)	.49	-.11	-1.93	.055
Acceptance	(20)	-.62 (-1.54, .29)	.47	-.06	-1.34	.181
	(24)	-.42 (-1.30, .45)	.44	-.05	.93	.340
Religion	(22)	-.20 (-1.31, .91)	.56	-.02	-.36	.722
	(27)	.45 (-.74, 1.63)	.60	.05	.74	.459
Self-blame	(13)	2.68 (1.80, 3.56)	.45	.35	6.00	<.001
	(26)	.92 (-.06, 1.91)	.50	.10	1.85	.066
Māori coping	(29)	-.28 (-1.39, .83)	.56	-.02	-.50	.615

Note. R^2=.71; ΔR^2=.67 (p= <.001).

APPENDIX 13: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF ITEM 4 OF THE EXTRA COPING QUESTIONS AS A PREDICTOR OF PSS-10 SCORE UNDER SURVEY 1







APPENDIX 14: LINEAR MODEL OF STRUCTURE AND HOMESCHOOLING AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 1

Linear model on the use of structure and homeschooling as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE*	*B*	*t*	*P*
(1) Constant	18.80 (17.06, 20.55)	.89		12.22	<.001
Use of daily routine/timetable vs. not using daily routine/timetable	-1.42 (-3.53, .69)	1.07	-.09	-1.33	.186
(2) Constant	19.01 (17.05, 20.98)	.10		19.07	<.001
Sharing tasks with partner in bubble vs. not sharing tasks with partner	-1.58 (-3.84, .69)	1.15	-.09	-1.37	.172
(3) Constant	18.57 (17.16, 19.98)	.72		25.90	<.001
Use of designated space/time to work from home vs. not using designated space/time for home working	-1.43 (-3.38, .53)	.99	-.09	-1.44	.152
(4) Constant	18.82 (17.58, 20.07)	.63		29.71	<.001
Use of strategies to separate work at home from family life vs. not using such strategies	-2.51 (-4.49, -.53)	1.01	-.16	-2.49	.013
(5) Constant	19.24 (17.02, 21.46)	1.13		17.08	<.001
Homeschooling children vs. not homeschooling children	-1.75 (-4.22, .72)	1.26	-.09	-1.40	.164
(6) Constant	19.26 (17.21, 21.31)	1.04		18.51	<.001
Use of online resources for homeschooling vs. not using online resources for homeschooling	-1.85 (-4.18, .48)	1.18	-.10	-1.57	.119

Note. R^2=.01; ΔR^2=.00; p = .186 for Question 1, R^2=.01; ΔR^2=.00; p = .172 for Question 2, R^2=.01; ΔR^2=.00; p = .152 for Question 3, R^2=.03; ΔR^2=.02; p = .013 for Question 4, Note. R^2=.01; ΔR^2=.00; p = .164 for Question 5, R^2=.01; ΔR^2=.01; p = .119 for Question 6.

APPENDIX 15: LINEAR MODEL OF THE USE OF ONLINE RESOURCES AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 1

Linear model of the Extra Coping Questions on the use of online resources as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE*	*B*	*t*	*P*
(7) Constant	18.08 (16.88, 19.29)	.61		29.62	<.001
Use of online parenting resources versus not using online parenting resources	-.76	1.06	-.05	-.72	.470
(8) Constant	18.15 (16.56, 19.74)	.81		22.46	<.001
Use of social media to organize playdates for children versus not organizing online playdates	-.51 (-2.54, 1.51)	1.03	-.03	-.50	.617
(9) Constant	18.53 (17.02, 20.04)	.77		24.20	<.001
Use of online resources for physical activity inside versus not doing this	-1.21 (-3.19, .78)	1.01	-.08	-1.20	.232
(10) Constant	16.15 (13.17, 19.14)	1.52		10.65	<.001
Watching movies, series or documentaries together versus not watching television together	1.88 (-1.29, 5.04)	1.61	.08	1.17	.244
(11) Constant	16.96 (15.56, 18.35)	.71		24.00	<.001
Playing videogames together versus not playing videogames together	1.72 (-.23, 3.67)	.99	.11	1.73	.084
(12) Constant	20.09 (16.92, 23.26)	1.61		12.48	<.001
Using social media to stay in touch with whanau outside bubble versus not doing this	-2.50 (-5.83, .84)	1.69	-.10	-1.48	.142

Note. R^2=.00; ΔR^2= -.00; p = .470 for Question 7, R^2=.01; ΔR^2=.00; p = .617 for Question 8, R^2=.01; ΔR^2=.00; p = .232 for Question 9, R^2=.01; ΔR^2=.00; p = .244 for Question 10, R^2=.01; ΔR^2=.01; p = .084 for Question 11, R^2=.01; ΔR^2=.01; p = .142 for Question 12.

APPENDIX 16: LINEAR MODEL OF THE USE OF OFFLINE RESOURCES AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 1

Linear model of the Extra Coping Questions on the use of offline resources as predictors of PSS-10 score under Survey 1, 95% bias corrected and accelerated confidence intervals reported in parentheses

	B	*SE*	*B*	*t*	*P*
(13) Constant	18.76	1.26		14.93	<.001
	(16.28, 21.23)				
Reading books together versus not reading books together	-1.10	1.37	-.05	-.81	.421
	(-3.80, 1.59)				
(14) Constant	19.24	1.65		11.65	<.001
	(15.98, 22.49)				
Playing together (using offline resources) versus not doing this	-1.55	1.73	-.06	-.89	.372
	(-4.96, 1.86)				
(15) Constant	18.73	2.24		8.37	<.001
	(14.33, 23.14)				
Engaging in physical activity outside together versus not engaging in physical activity outside together	-.95	2.30	-.03	-.42	.678
	(-5.48, 3.57)				
(16) Constant	21.06	1.20		10.58	<.001
	(17.13, 24.98)				
Engaging in creative activities together versus not engaging in creative activities together	-3.44	2.06	-.11	-1.67	.096
	(-7.49, .61)				

Note. R^2=.0; ΔR^2= -.00; p = .421 for Question 13, R^2=.00; ΔR^2= -.00; p = .372 for Question 14, R^2=.01; ΔR^2= -.00; p = .678 for Question 15, R^2=.01; ΔR^2=.02; p = .096 for Question 16.

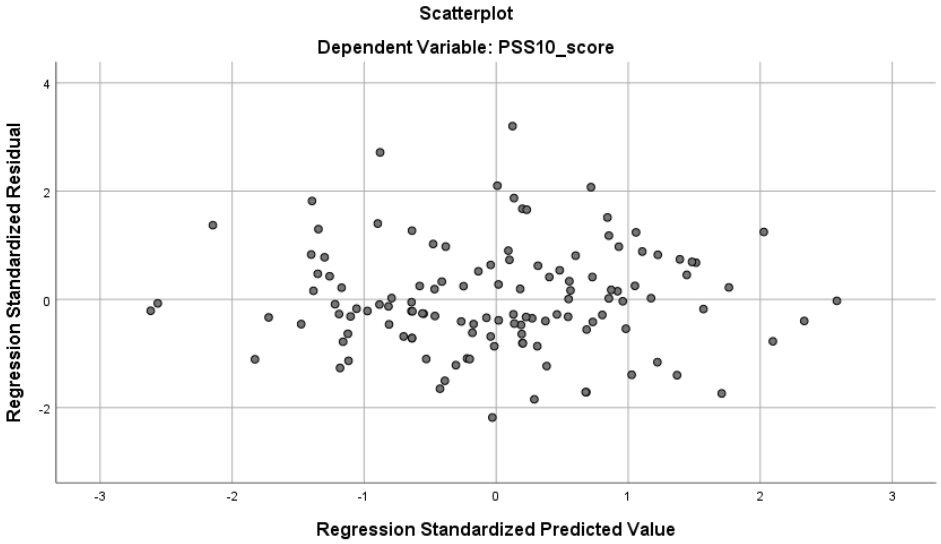
APPENDIX 17: DESCRIPTIVE STATISTICS OF THE PSS-10 UNDER SURVEY 2

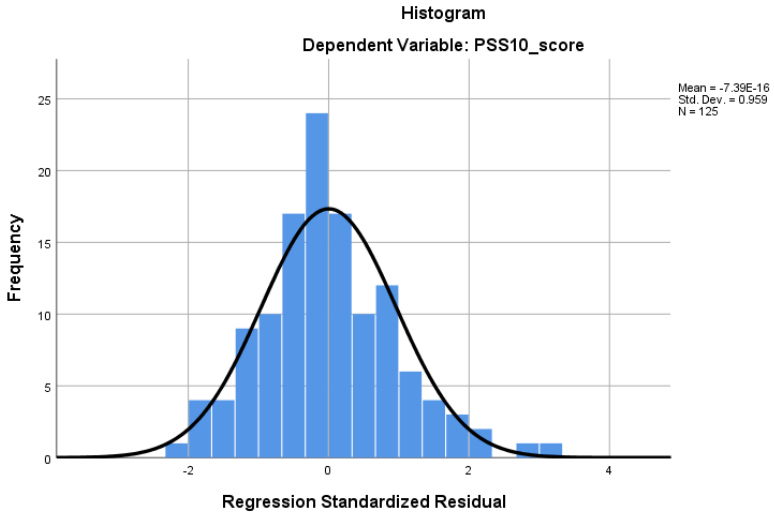
Item *In the last four weeks…*	Range	*M*	*SD*
(1) How often have you been upset because of something that happened unexpectedly?	0 – 4	1.63	.92
(2) How often have you felt that you were unable to control the important things in your life?	0 – 4	1.71	1.05
(3) How often have you felt nervous and "stressed"?	0 – 4	2.17	.91
(4) How often have you felt confident about your ability to handle your personal problems?	0 – 3	1.28	.85
(5) How often have you felt things were going your way?	0 - 4	1.56	.79
(6) How often have you found that you could not cope with all the things you had to do?	0 - 4	1.77	1.01
(7) How often have you been able to control irritations in your life?	0 - 4	1.48	.77
(8) How often have you felt on top of things?	0 - 4	1.66	.87
(9) How often have you felt angered because of things that were outside of your control?	0 - 4	1.58	.82
(10) How often have you felt difficulties were piling up so high that you could not overcome them?	0 - 4	1.46	1.00

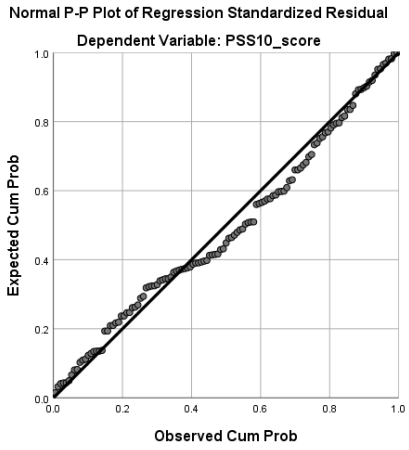
APPENDIX 18: DESCRIPTIVE STATISTICS OF THE BRIEF COPE INVENTORY UNDER SURVEY 2

Item	*M*	*SD*
(1) I have been turning to work or other activities to take my mind off things	1.79	.86
(2) I have been concentrating my efforts on doing something about the situation	2.18	.90
(3) I have been saying to myself "this isn't real."	1.23	.48
(4) I have been using alcohol or other drugs to feel better	1.24	.45
(5) I have been getting emotional support from others	2.17	.77
(6) I have been giving up trying to deal with it	1.31	.63
(7) I have been taking action to try to make the situation better	2.38	.86
(8) I have been refusing to believe that it has happened	1.10	.30
(9) I have been saying things to let my unpleasant feelings escape	1.63	.76
(10) I have been getting help and advice from other people	1.94	.80
(11) I have been using alcohol or other drugs to help me get through	1.22	.43
(12) I have been trying to see it in a different light, to make it seem more positive	2.48	.90
(13) I have been criticizing myself	1.94	.94
(14) I have been trying to come up with a strategy about what to do	2.23	.94
(15) I have been getting comfort and understanding from someone	2.24	.85
(16) I have been giving up the attempt to cope	1.22	.56
(17) I have been looking for something good in what is happening	2.87	.89
(18) I have been making jokes about it	2.26	.91
(19) I have been doing something to think about it less	2.18	.93
(20) I have been accepting the reality of the fact that it has happened	3.32	.86
(21) I have been expressing my negative feelings	2.11	.69
(22) I have been trying to find comfort in my religion/spiritual beliefs	1.54	.87
(23) I have been trying to get advice or help from other people	1.77	.72
(24) I have been learning to live with it	3.06	.84
(25) I have been thinking hard about what steps to take	2.42	.91
(26) I have been blaming myself for things that happened	1.40	.75
(27) I have been praying or meditating	1.53	.81
(28) I have been making fun of the situation	1.97	.82
(29) I have been using karakia, waiata, whakatauki, pūrākau or other mātauranga Māori and/or tikanga Māori	1.15	.44

APPENDIX 19: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF EFFECTS OF THE LOCKDOWN AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 2







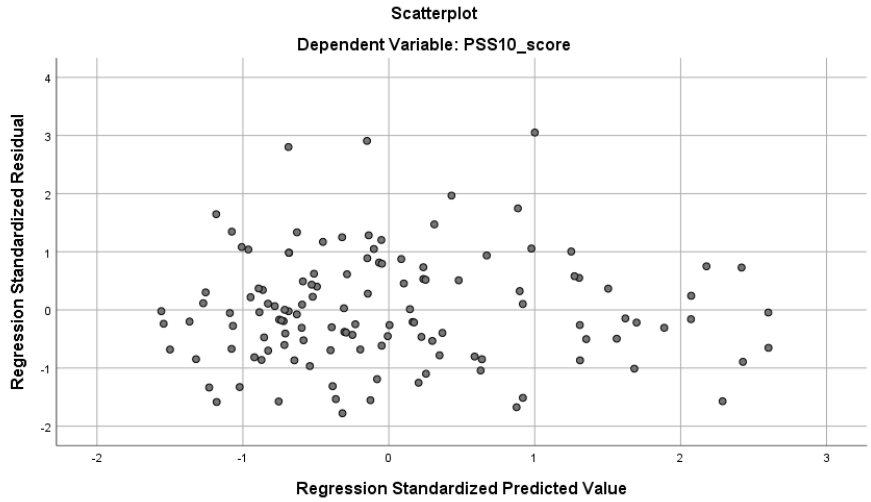
APPENDIX 20: LINEAR MODEL OF EFFECTS OF THE COVID-19 RESTRICTIONS AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 2

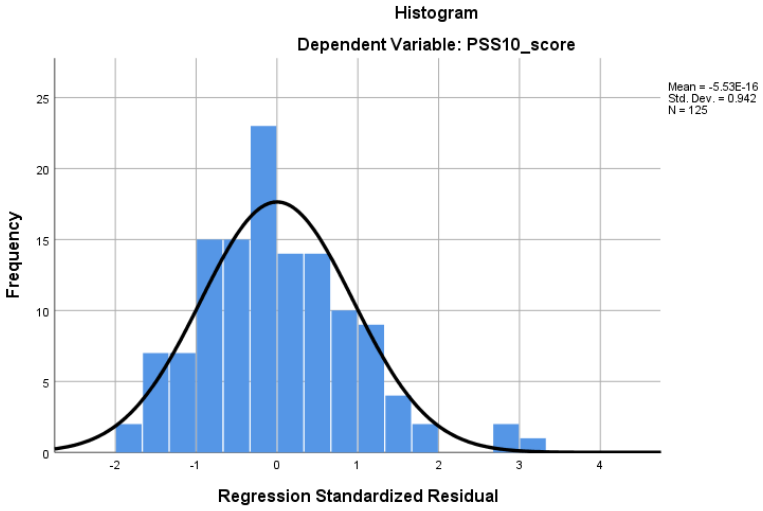
Linear model of effects of the COVID-19 Restrictions in New Zealand as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

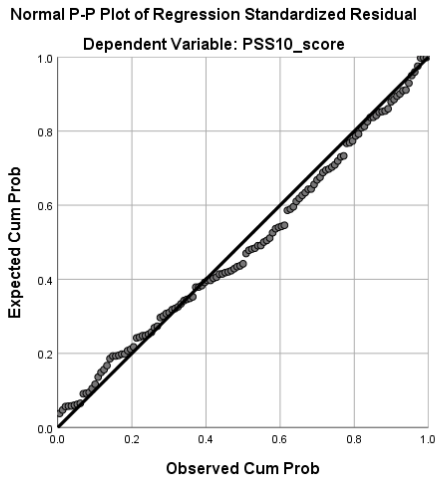
Item	*B*	*SE B*	*B*	*T*	*P*
Constant	16.73	3.60		4.65	<.001
	(9.60, 23.87)				
(1) Negative effect on mental wellbeing	**2.88**	**.86**	**.38**	**3.34**	**.001**
	(1.17, 4.58)				
(2) Positive effect on mental wellbeing	-.39	.80	-.05	-.49	.627
	(-1.97, 1.19)				
(3) It enhances the relationships within our bubble	.22	.85	.03	.26	.797
	(-1.46, 1.90)				
(4) It puts a strain on relationships in our bubble	.42	.75	.06	.56	.575
	(-1.06, 1.91)				
(5) We miss face-to-face contact outside bubble	-.46	.71	-.07	-.66	.512
	(-1.86, .93)				
(6) We miss our usual activities outside the house	-1.28	.76	-.17	-1.69	.095
	(-2.79, .23)				
(7) We can focus on “what really matters”	1.01	.88	.12	1.16	.250
	(-.72, 2.75)				
(8) Less stress from work and/or school	-.63	.63	-.11	-.99	.324
	(-1.88, .63)				
(9) It allows our family to slow down	-.37	.70	-.06	-.53	.596
	(-1.75, 1.01)				
(10) We spend more time together as a family	-.58	.90	-.07	-.65	.517
	(-2.36, 1.19)				

Note. R^2=.22; ΔR^2=.15 (p=.001).

APPENDIX 21: PLOT OF STANDARDIZED PREDICTED VALUES AGAINST STANDARDIZED RESIDUALS, HISTOGRAM, AND PROBABILITY PLOT FOR THE LINEAR MODEL OF COPING DIMENSIONS (BRIEF COPE INVENTORY) AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 1







APPENDIX 22: LINEAR MODEL OF THE 28 ITEMS OF THE BRIEF COPE INVENTORY AS PREDICTORS OF PSS-10 SCORE UNDER SURVEY 2

Linear model of the 28-item Brief COPE Inventory (including the 29th item that was added for the current study) as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

Coping dimension	Items	*B*	*SE*	*β*	*T*	*P*
Constant		10.19 (2.89, 17.50)	3.68		2.77	.007
Self-distraction	(1)	-.58 (-2.06, .91)	.75	-.08	-.77	.441
	(19)	.59 (-.62, 1.79)	.61	.08	.97	.334
Active coping	(2)	.25 (-1.27, 1.78)	.77	.04	.33	.743
	(7)	.47 (-1.20, 2.14)	.84	.06	.56	.577
Denial	(3)	1.34 (-6.91, 6.57)	1.32	.10	1.01	.315
	(8)	-.57 (-4.50, 3.36)	1.98	-.03	-.28	.774
Substance use	(4)	-.17 (-6.91, 6.57)	3.40	-.01	-.05	.960
	(11)	-1.47 (-8.19, 5.25)	3.38	-.10	-.44	.665
Emotional support	(5)	-.39 (-2.25, 1.47)	.94	-.05	-.42	.677
	(15)	-.24 (-1.83, 1.35)	.80	-.03	-.30	.766
Instrumental support	(10)	-.27 (-2.08, 1.54)	.91	-.03	-.29	.770
	(23)	1.37 (-.49, 3.21)	.93	.15	1.47	.146
Behavioural	**(6)**	**4.02 (1.39, 6.66)**	**1.33**	**.39**	**3.08**	**.003**
disengagement	(16)	-1.78 (-4.68, 1.13)	1.46	-.52	-1.22	.227
Venting	(9)	-1.60 (-3.30, .09)	.85	-.19	-1.88	.064
	(21)	.86 (-1.17, 2.89)	1.02	.09	.84	.402
Positive reframing	(12)	.16 (-1.37, 1.68)	.77	.02	.20	.840
	(17)	.11 (-1.48, 1.70)	.80	.02	.14	.890
Planning	(14)	.66 (-1.04, 2.37)	.86	.10	.77	.442
	(25)	.64 (-.92, 2.20)	.79	.09	.81	.418
Humor	(18)	.11 (-1.49, 1.71)	.81	.02	.13	.896
	(28)	-1.66 (-3.34, .03)	.85	-.21	-1.95	.054
Acceptance	(20)	-.71 (-2.24, .82)	.77	-.09	-.92	.361
	(24)	-.66 (-2.01, .69)	.68	-.09	-.97	.332
Religion	(22)	1.24 (-1.05, 3.54)	1.16	.17	1.07	.286
	(27)	-2.02 (-4.60, .56)	1.30	-.25	-1.56	.123
Self-blame	**(13)**	**2.17 (.61, 3.73)**	**.79**	**.31**	**2.75**	**.007**
	(26)	1.60 (-.33, 3.52)	.97	.18	1.64	.104
Māori coping	(29)	.64 (-2.16, 3.44)	1.41	.04	.46	.650

Note. R^2=.55; ΔR^2=.41 (p= <.001).

APPENDIX 23: LINEAR MODEL OF STRUCTURE AND HOMESCHOOLING AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 2

Linear model on the use of structure and homeschooling as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE*	*B*	*t*	*P*
(1) Constant	17.40 (15.30, 19.49)	1.06		16.41	<.001
Use of daily routine/timetable vs. not using daily routine/timetable	-1.61 (-4.12, .91)	1.27	-.11	-1.27	.208
(2) Constant	15.77 (13.31, 18.22)	1.24		12.69	<.001
Sharing tasks with partner in bubble vs. not sharing tasks with partner	-.66 (-2.13, 3.45)	1.41	.04	.47	.642
(3) Constant	16.41 (14.87, 17.96)	.78		21.03	<.001
Use of designated space/time to work from home vs. not using designated space/time for home working	-.32 (-2.67, 2.03)	1.19	-.02	-.27	.787
(4) Constant	16.67 (15.17, 18.17)	.76		22.01	<.001
Use of strategies to separate work at home from family life vs. not using such strategies	-.99 (-3.36, 1.38)	1.20	-.08	-.83	.409
(5) Constant	16.20 (14.99, 17.41)	.61		26.55	<.001
Homeschooling children vs. not homeschooling children	1.02 (-3.48, 5.52)	2.27	.04	.45	.655
(6) Constant	16.15 (14.94, 17.36)	.61		26.51	<.001
Use of online resources for homeschooling vs. not using online resources for homeschooling	1.74 (-2.76, 6.23)	2.27	.07	.77	.445

Note. $R^2 = .01$; $\Delta R^2 = .01$; $p = .208$ for Question 1, $R^2 = .00$; $\Delta R^2 = -.01$; $p = .642$ for Question 2, $R^2 = .00$; $\Delta R^2 = -.01$; $p = .787$ for Question 3, $R^2 = .01$; $\Delta R^2 = -.00$; $p = .409$ for Question 4, Note. $R^2 = .00$; $\Delta R^2 = -.01$; $p = .655$ for Question 5, $R^2 = .01$; $\Delta R^2 = -.00$; $p = .445$ for Question 6.

APPENDIX 24: LINEAR MODEL OF THE USE OF ONLINE COPING STRATEGIES AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 2

Linear model of the Extra Coping Questions on the use of online resources as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

Item	*B*	*SE*	*B*	*t*	*P*
(7) Constant	16.15 (14.94, 17.36)	.61		26.51	<.001
Use of online parenting resources versus not using online parenting resources	1.74 (-2.76, 6.23)	2.27	.07	.77	.472
(8) Constant	16.26 (14.66, 17.86)	.81		20.08	<.001
Use of social media to organize playdates for children versus not organizing online playdates	.04 (-2.30, 2.37)	1.18	.00	.03	.974
(9) Constant	16.81 (15.20, 18.42)	.81		20.67	<.001
Use of online resources for physical activity inside versus not doing this	-1.11 (-3.43, 1.22)	1.17	-.09	-.94	.348
(10) Constant	14.57 (11.87, 17.26)	1.36		10.70	<.001
Watching movies, series or documentaries together versus not watching television together	2.10 (-.89, 5.08)	1.51	.12	1.39	.167
(11) Constant	16.22 (14.73, 17.72)	.76		21.50	<.001
Playing videogames together versus not playing videogames together	.13 (-2.25, 2.52)	1.21	.01	.11	.913
(12) Constant	17.30 (14.40, 20.21)	1.47		11.79	<.001
Using social media to stay in touch with whanau outside bubble versus not doing this	-1.22 (-4.39, 1.95)	1.60	-.07	-.76	.448

Note. R^2 = .00; ΔR^2 = -.00; p = .472 for Question 7, R^2 = .00; ΔR^2 = -.01; p = .974 for Question 8, R^2 = .01; ΔR^2 = -.00; p = .348 for Question 9, R^2 = .02; ΔR^2 = .01; p = .167 for Question 10, R^2 = .00; ΔR^2 = -.01; p = .913 for Question 11, R^2 = .01; ΔR^2 = -.00; p = .448 for Question 12.

APPENDIX 25: LINEAR MODEL OF THE USE OF OFFLINE COPING STRATEGIES AS PREDICTORS OF PERCEIVED STRESS UNDER SURVEY 2

Linear model of the Extra Coping Questions on the use of offline resources as predictors of PSS-10 score under Survey 2, 95% bias corrected and accelerated confidence intervals reported in parentheses

	B	*SE*	*B*	*t*	*P*
(13) Constant	15.36	1.24		12.39	<.001
	(16.28, 21.23)				
Reading books together versus not reading books together	1.18	1.41	.08	.84	.402
	(-3.80, 1.59)				
(14) Constant	15.90	1.51		10.54	<.001
	(12.91, 18.88)				
Playing together (using offline resources) versus not doing this	.45	1.63	.03	.27	.785
	(-2.79, 3.69)				
(15) Constant	12.91	1.96		6.59	<.001
	(14.33, 23.14)				
Engaging in physical activity outside together versus not engaging in physical activity outside together	3.69	2.05	.16	1.80	.074
	(-5.48, 3.57)				
(16) Constant	15.44	1.64		9.40	<.001
	(12.19, 18.69)				
Engaging in creative activities together versus not engaging in creative activities together	.96	1.76	.05	.55	.586
	(-2.52, 4.44)				

Note. R^2 = .01; ΔR^2 = -.00; p = .402 for Question 13, R^2=.00; ΔR^2= -.01; p = .785 for Question 14, R^2=.03; ΔR^2= .02; p = .074 for Question 9, R^2 = .00; ΔR^2 = -.01; p = .586 for Question 16.

APPENDIX 26: SURVEY

Tēnā koutou katoa,
My name is Rosanna Stoop-Maigret and as part of my Master of Science Degree in Psychology at Massey University I am writing a thesis called "Coping with the Impact of the COVID-19 Restrictions: Experiences of New Zealand-based Parents". This study will be conducted under the guidance of Dr Stephen Hill and Dr Ute Kreplin.

What is this research about?
As a parent, I know that the current COVID-19 restrictions have an impact on families in New Zealand. Suddenly, our children are home from school, non-essential services are closed, and our life revolves around Bubbles. I am interested to find out what strategies Kiwi families use to cope with the COVID-19 restrictions and how this might relate to the amount of stress that they perceive.

Who can take part?
All parents/caregivers who live in NZ, are aged 18 or over and have children younger than 18 years of age living in their Bubble. We ask that only one questionnaire be completed per household. Participation is possible until the 16th of May.

What will happen when I participate?
You will be asked to complete an online survey. Completing the survey will take up to 30 minutes. Once you start the survey, you will be able to save your answers and return to the questionnaire later (up to one week after you have started). The questionnaire consists of four sections that cover the following topics: (1) Your COVID-19 Bubble, (2) Impact, (3) Coping, and (4) Perceived Stress. The first section of this questionnaire covers questions on (amongst others) your age, the number of children in your household, and your ethnicity. The reason we have included ethnicity is because we want to be sure that our sample is heterogeneous (i.e. that it includes all ethnicities that makeup Aotearoa). Section 2 looks at the impact the COVID-19 restrictions have on your family. The main question here is whether you consider this impact "mostly positive", "mostly negative" or "mixed". The third section covers the coping strategies that you use. The questions you can expect to see here, include whether you use religion, emotional support, or online resources to cope with the current restrictions. Section 4 examines perceived stress. Questions in this section look at how often you feel nervous, stressed, or irritated.

Do I have to take part?
You are under no obligation to accept this invitation. If you decide to participate, completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question. If you decide to take part in this survey, you will be asked whether you want to receive an invitation to complete the same survey again in four weeks.

What will happen to my data?
Participation is anonymous, but if you are willing to complete the survey again in four weeks, we will ask you for an email address. This email address will only be used to send you the

second survey invitation. In this case, your responses from the first survey will be matched to the second survey by an anonymous SubjectID that will be generated in our survey software. We will protect your identity by storing your email address securely and separately from your (anonymous) survey data. Once this study is completed, your email address will be deleted. Anonymised data (i.e. your answers to the questions in the survey) will be stored in an online database (Open Science Framework).

What if I am currently experiencing distress?
A list of (online) support services is included at the end of this survey. You will also have access to this list if you decide not to give consent to participate in this research. If you are currently distressed and would like to access the list of support services before starting this survey, please click the "I would like help now" button at the bottom of this page.

What if I have more questions?
If you have any questions or concerns regarding this research project, please email Rosanna Stoop-Maigret (sarah.stoop.1@uni.massey.ac.nz), Dr Stephen Hill (s.r.hill@massey.ac.nz) or Dr Ute Kreplin (u.kreplin@massey.ac.nz), or private message us on our Facebook page: https://facebook.com/kiwiparentscopingwithcovid19restrictions.

Committee Approval Statement
This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application SOB 20/05. If you have any concerns about the conduct of this research, please contact Dr Gerald Harrison, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83570, email humanethicsouthb@massey.ac.nz

Please click the button below if you would like to access our list of support services now

☐ I would like help now

Screening

Screen 1 Are you a New Zealand-based parent/caregiver?

- ○ Yes
- ○ No

Screen 2 Are you aged 18 or over?

- ○ Yes
- ○ No

Screen 3 Do you have children younger than 18 years of age living in your household?

- ○ Yes
- ○ No

Informed consent

I have read and I understand the Information Sheet which explained the details of the study to me. Any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time before the 31st of December 2020. I agree to participate in this study under the conditions set out in the Information Sheet. I hereby consent to take part in this study by continuing with this survey:

- ○ Yes
- ○ No

Section 1: Your bubble

What is your age? _____

What is your gender?

▼ Male (1) ... Nonbinary (3)

What is your ethnicity?

- ☐ New Zealand European
- ☐ Māori
- ☐ Samoan
- ☐ Cook Island Māori
- ☐ Tongan
- ☐ Chinese
- ☐ Indian
- ☐ Other Asian
- ☐ European
- ☐ North American
- ☐ South American
- ☐ African
- ☐ Other _____

What is your highest level of education?

▼ High school (unfinished) (1) ... Postgraduate Degree (5)

In what DHB region in NZ is your household based?

▼ Auckland (1) ... Whanganui (20)

Do you live urban or rural?

- ○ Urban
- ○ Rural

Does your household have access to a computer, laptop, or tablet?

- ○ Yes
- ○ No

Does your household have access to internet?

- ○ Yes
- ○ No
- ○ Limited

How many adults are part of your household Bubble?

▼ 1 (1) ... 10 (10)

What is your marital status?

▼ Married (1) ... Single (5)

If you have a partner, is he or she part of your household Bubble?

- ○ Yes
- ○ No
- ○ N/A

Are you normally the main caregiver of the child/children in your household Bubble?

- ○ Yes
- ○ No
- ○ Shared

How many children under 18 are part of your household Bubble?

▼ 1 (1) ... 15 (15)

What is the age of the child/children in your household (in years)?

▼ 0 (0) ... 17 (17)

Below, please tick the boxes that apply to you, your partner, and/or another adult within your Bubble **in the previous four weeks.** Tick as many boxes as applicable. If a situation doesn't apply to anyone within your household, please select "N/A".

	I have (1)	My partner has (2)	Another adult my Bubble has (3)	N/A (4)
...been gainfully employed (Been employed)	☐	☐	☐	☐
...worked as an essential service worker (Essential service worker)	☐	☐	☐	☐
...worked from home (Worked from home)	☐	☐	☐	☐
...studied from home (Studied from home)	☐	☐	☐	☐
...lost or left paid employment (Lost employment)	☐	☐	☐	☐
...had hours of paid employment reduced (Hours reduced)	☐	☐	☐	☐
...had income reduced (Income reduced)	☐	☐	☐	☐
...spent more time at home than usual (More at home than usual)	☐	☐	☐	☐

Section 2: Impact

How would you describe the impact of the COVID-19 restrictions on your family?

- ○ Mostly positive
- ○ Mostly negative
- ○ Mixed: both negative and positive

The items below describe the possible effects that the COVID-19 restrictions may have on you and your family. Please rate the extent to which these items are true for your family, using the available response choices.

	Never (0)	Almost never (1)	Sometimes (2)	Fairly often (3)	Very often (4)
It has a negative effect on my/our mental wellbeing	○	○	○	○	○
It has a positive effect on my/our mental wellbeing	○	○	○	○	○
It enhances the relationships within our Bubble	○	○	○	○	○
It puts a strain on the relationships within our Bubble	○	○	○	○	○
We miss face-to-face contact with friends/family outside our Bubble	○	○	○	○	○
We miss our usual activities outside	○	○	○	○	○
It gives our family the chance to focus on "what really matters"	○	○	○	○	○
We experience less stress from work and/or school	○	○	○	○	○
It allows our family to slow down	○	○	○	○	○
We spend more time together as a family	○	○	○	○	○

Section 3: Brief COPE Inventory

Please indicate how often you have used the following coping strategies in the last four weeks	Not at all (1)	A little bit (2)	A medium amount (3)	A lot (4)
I've been turning to work or other activities to take my mind off things (self-distraction)	○	○	○	○
I've been concentrating my efforts on doing something about the situation I'm in (active coping)	○	○	○	○
I've been saying to myself "this isn't real" (denial)	○	○	○	○
I've been using alcohol or other drugs to make myself feel better (substance use)	○	○	○	○
I've been getting emotional support from others (emotional support)	○	○	○	○
I've been giving up trying to deal with it (behavioral disengagement)	○	○	○	○
I've been taking action to try to make the situation better (active coping)	○	○	○	○
I've been refusing to believe that it has happened (denial)	○	○	○	○
I've been saying things to let my unpleasant feelings escape (venting)	○	○	○	○
I've been getting help and advice from other people (instrumental support)	○	○	○	○
I've been using alcohol or other drugs to help me get through it (substance use)	○	○	○	○
I've been trying to see it in a different light (positive reframing)	○	○	○	○
I've been criticizing myself (self-blame)	○	○	○	○
I've been trying to come up with a strategy about what to do (planning)	○	○	○	○
I've been getting comfort and understanding from someone (emotional support)	○	○	○	○
I've been giving up the attempt to cope (behavioral disengagement)	○	○	○	○

I've been looking for something good in what is happening (positive reframing)	○	○	○	○
I've been making jokes about it (humor)	○	○	○	○
I've been doing something to think about it less, such as watching tv, reading, daydreaming, or sleeping. (self-distraction)	○	○	○	○
I've been accepting the reality of the fact that it has happened (acceptance)	○	○	○	○
I've been expressing my negative feelings (venting)	○	○	○	○
I've been trying to find comfort in my religion or spiritual beliefs (religion)	○	○	○	○
I've been trying to get advice or help from other people about what to do (instrumental support)	○	○	○	○
I've been learning to live with it (acceptance)	○	○	○	○
I've been thinking hard about what steps to take (planning)	○	○	○	○
I've been blaming myself for things that happened (self-blame)	○	○	○	○
I've been praying or meditating (religion)	○	○	○	○
I've been making fun of the situation (humor)	○	○	○	○
I have been using karakia, waiata, whakatauki, pūrākau or other mātauranga Māori and/or tikanga Māori (Maori)	○	○	○	○

Section 3: Extra Coping Questions

Do you stick to a daily routine/timetable to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you share tasks with your partner or another adult in your Bubble to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No
- ○ N/A

If you work from home: do you use a designated space or time for your work?

- ○ Yes
- ○ No
- ○ N/A

If you work from home: do you use strategies to separate your work from your family life?

- ○ Yes
- ○ No
- ○ N/A

Are you currently homeschooling your children?

- ○ Yes
- ○ No

If you are homeschooling your child/children: do you use online resources?

- ○ Yes
- ○ No
- ○ N/A

Do you use online parenting resources (such as online support groups on social media) to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you use FaceTime/Zoom/Skype/WhatsApp to organize online playdates for your children?

- ○ Yes
- ○ No

Do you and your family engage in physical activity inside using online resources (such as yoga or Kapa Haka) to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you and your kids watch movies, series, or documentaries (on Netflix for example) to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you and your kids play videogames to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you and your children use FaceTime/Zoom/Skype/WhatsApp to stay in touch with whānau outside your Bubble?

- ○ Yes
- ○ No

Do you and your children read books together to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you and your kids play together (using offline resources such as balls/puzzles/boardgames/lego) to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you and your kids engage in physical activity outside (including walking the dog/scootering/cycling) to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Do you and your kids engage in creative activities (such as painting/knitting/baking) to cope with the impact of the COVID-19 restrictions?

- ○ Yes
- ○ No

Section 4: Perceived stress

	Never (0)	Almost never (1)	Sometimes (2)	Fairly often (3)	Very often (4)
In the last four weeks, how often have you been upset because of something that happened unexpectedly?	○	○	○	○	○
In the last four weeks, how often have you felt that you were unable to control the important things in your life?	○	○	○	○	○
In the last four weeks, how often have you felt nervous and "stressed"?	○	○	○	○	○
In the last four weeks, how often have you felt confident about your ability to handle your personal problems?	○	○	○	○	○
In the last four weeks, how often have you felt that things were going your way?	○	○	○	○	○
In the last four weeks, how often have you found that you could not cope with all the things that you had to do?	○	○	○	○	○
In the last four weeks, how often have you been able to control irritations in your life?	○	○	○	○	○
In the last four weeks, how often have you felt that you were on top of things?	○	○	○	○	○
In the last four weeks, how often have you been angered because of things that were outside your control?	○	○	○	○	○
In the last four weeks, how often have you felt difficulties were piling up so high that you could not overcome them?	○	○	○	○	○

End of survey

This section of the survey is separate from your earlier answers. Below, please indicate whether you are willing to participate in the second survey or wish to receive a summary of the results of this study.

Are you willing to participate in the second survey in four weeks?

- ○ Yes
- ○ No

Would you like to receive a summary of the findings of this research project?

- ○ Yes
- ○ No

Display This Question:

If Would you like to receive a summary of the findings of this research project? = Yes

Or Are you willing to participate in the second survey in four weeks? = Yes

If you answered 'Yes' to being contacted again OR receiving a summary of results, please provide your email address_____

Support services

Thank you for your participation in this research. This is the end of the survey. If you have any questions, please contact Rosanna Stoop-Maigret (sarah.stoop.1@uni.massey.ac.nz), Dr Stephen Hill (s.r.hill@massey.ac.nz), Dr Ute Kreplin (u.kreplin@massey.ac.nz) or private message us on our Facebook page:

https://www.facebook.com/kiwiparentscopingwithcovid19restrictions/

If you or someone else is currently experiencing psychological distress, your first point of contact is your GP who will be able to assess your symptoms and refer you to appropriate mental health services. If you or someone else is in immediate danger, call 111. Below, you find a list of (online) support services:

Helpful websites & apps
https://www.mentalhealth.org.nz
https://depression.org.nz
https://www.anxiety.org.nz

https://thiswayup.org.au/
https://www.sparX.org.nz
https://terauora.com/
Beating the Blues (requires GP referral)
"Staying on Track" available through https://www.justathought.co.nz
Woebot (a clever robot that delivers cognitive behaviour therapy)
Smiling Mind (mindfulness mediation app designed by clinical psychologists)

Helplines
Lifeline 0800 543 354 or text 4357
Depression and Anxiety Helpline (24/7) 0800 111 757
Anxiety Helpline (24/7) 0800 269 4389
Plunketline 0800 933 922
Free counseling helpline 1737
Healthline 0800 611 116

Ethics *This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 4000022419. If you have any concerns about the conduct of this research, please contact Dr Gerald Harrison, Chair, Massey University Human Ethics Committee: Southern B, telephone* 06 356 9099 *extension 83570, email* humanethicsouthb@massey.ac.nz